

NCEH/ATSDR News Clips for Monday, August 17, 2015

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Epoch Times -- 8/16/2015 New York, NY

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- 2. Animas River reopens for recreational use after mine spill ATSDR Named**
CBS News Network -- 8/14/2015 New York, NY

The Agency for Toxic Substances and Disease Registry recommends several health practices for those who come in contact with the Animas River water including: not drinking from it unless it is treated, washing hands thoroughly with soap and water, washing clothes after contact and avoiding areas where there is visible discoloration with the sediment and surface water.

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High levels of sodium cyanide have been detected by wastewater monitors amid growing anger at the blasts which killed at least 114 people

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...in which the concentration of dangerous chemicals exceeding the standards was found.

7. Fukushima operator's mounting legal woes to fuel nuclear opposition
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They include a judge's forced disclosure of a 2008 internal document prepared for managers at Tokyo Electric Power Co warning of a need for precautions against an unprecedented nuclear catastrophe.

8. Colorado Spill Heightens Debate Over Future of Old Mines
New York Times -- 8/16/2015 New York, NY

...Gold King went on to become one of the most productive mines in Colorado's San Juan County, with three shifts of men working 24 hours a day in its dark corridors. ...leaving behind a toxic legacy that this region has struggled to clean up for decades.

9. Bird flu to human transmission a 'concern', not yet high risk: CDC
CNBC News -- 8/16/2015 New York, NY

The worst animal virus outbreak in U.S. history has killed 48 million birds, yet no humans have been infected. Still, the head of the Centers for Disease Control's (CDC) Influenza Division says the department is "concerned" that the bird flu virus may mutate.

10. Sierra Leone Has First Week of No New Ebola Cases
Time Magazine -- 8/17/2015 New York

On Monday, the World Health Organization (WHO) announced that the Ebola response has moved into "phase 3," which means responders are working to ensure that the last known cases of Ebola in the country have not spread.

11. Return on investment slipping in biomedical research, study says
Medical Xpress -- 8/17/2015 PhysOrg.com

...while the number of scientists has increased more than nine-fold since 1965 and the National Institutes of Health's budget has increased four-fold, the number of new drugs approved by the Food and Drug Administration has only increased a little more than two-fold.

12. New bio-containment system unveiled in Georgia CDC named
Terra Daily -- 8/14/2015 Gerringong, NSW, Australia

The State Department said it was developed leveraging lessons learned from conducting high-risk medevac missions, such as the evacuation of Ebola victim from West Africa. It was developed by the State Department and MRIGlobal with contributions from the Paul G. Allen Family Foundation.

13. China warehouse explosion: Tianjin workers race to clear site of deadly chemicals before it rains
Independent, The -- 8/16/2015 London, UK

Officials confirmed the warehouse where the blast occurred was used to house more than 100 tons of sodium cyanide, a potentially deadly substance.

14. World food supply at growing risk from severe weather
ScienceInsider -- 8/13/2015 AAAS, Washington, DC

In 2007, drought struck the bread baskets of Europe, Russia, Canada, and Australia. Global grain stocks were already scant, so wheat prices began to rise rapidly. When countries put up trade barriers to keep their own harvests from being exported, prices doubled, according to an index of the Food and Agriculture Organization of the United Nations. Just 3 years later, another spike in food prices contributed to the Arab Spring uprisings.

15. Apparent ‘pay to cite’ offer sparks Internet outrage
ScienceInsider -- 8/14/2015 AAAS, Washington, DC

Scientists are erupting in outrage on this otherwise sleepy August day. The cause? Cyagen, a purveyor of transgenic research mice, is seemingly offering its scientist customers cash if they cite one of their products in a published paper. But a company spokesman says it's all a misunderstanding.

16. Corn Wars

New Republic, The -- 8/16/2015 Washington, DC

The farm-by-farm fight between China and the United States to dominate the global food supply. ...In Li's luggage, agents found two large Pop Weaver microwave popcorn boxes. Buried under the bags of unpopped snack kernels were roughly 300 tiny manila envelopes, all cryptically numbered—2155, 2403, 20362. Inside each envelope was a single corn seed. In Ye's luggage, agents found more corn seeds hidden amid his clothes, each one individually wrapped in napkins from a Subway restaurant. Customs officers were dispatched to the gate area for the Beijing flight, where they found the two men and conducted body searches. Still more corn seeds, also folded into napkins, were discovered in Ye's pockets.

17. Modern life may be causing a 'hidden epidemic'

FOX News Network -- 8/17/2015 New York, NY

Could pollution be to blame for why dementia is killing more people and being diagnosed earlier than ever? That's the theory being floated by researchers involved in a study of patients in 21 countries from 1989 to 2010.

18. Chattahoochee River Polluter Fined \$10 Million Atlanta

Press Release -- 8/17/2015

...unlawful discharge of toxic pollutants into the Chattahoochee River near Fulton Industrial Park.

19. The marijuana legalization movement begins in the states

Center For Public Integrity -- 8/17/2015 Washington DC

"I don't think that legalization is inevitable," said Alan Shinn, the executive director of the Coalition for a Drug-Free Hawaii. "The pro-marijuana people will say that it's just a matter of time before marijuana is legalized. I think there's other alternatives to legalization. We should really be taking a public health approach to this, especially with our youth."

20. China Evacuates Tianjin Blast Area Amid Fears of Toxic Chemicals in Air

Wall Street Journal -- 8/15/2015 New York, NY

...a leading commercial newspaper—said authorities ordered an evacuation of an area within a 1.9-mile radius of the blast site over fears of toxic gases emitted from hazardous chemicals. However, state broadcaster China Central Television reported that officials ordered a shifting of some personnel and the rescue command center, rather than a general evacuation.

21. Study shows how climate change threatens health

EurekAlert! -- 8/14/2015 Washington, DC

Gulf Coast, Northeast and West Coast of US at high risk

22. Volcanic activity slows at Sakurajima but alert remains in force
Japan Times, The -- 8/17/2015 Tokyo

Kyushu Electric Power Co.'s Sendai nuclear power plant is located 50 km from the volcano. Last Tuesday, it became the first nuclear plant to restart under tighter safety rules adopted in the wake of the 2011 Fukushima nuclear crisis.

23. Animals shrunk after Fukushima crisis began
ENENEWS.COM -- 8/14/2015 Internet

Japan Scientists: We conclude that the small size was caused by environmental stress imposed by unusual event

24. Constantly checking your mobile phone can lead to 'cognitive failures'
Independent, The -- 8/17/2015 London, UK

"This is a very underexamined area and a very important one. We are using technology on a daily basis but we don't understand its effect on us,"... ...a theory, however: that it is a mix of the two. In other words, those people already suffering from short attention spans are drawn to the distractions of modern technology, which makes it even harder for them to pay attention to their surroundings.

25. Australia Targets Wildlife-Killing Cats With Toxic Microchips
TakePart -- 8/14/2015 Beverly Hills, California

Implanting feral felines with chips that release poison and kill the predators when they attack is just one strategy for keeping native animals from going extinct.

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1. New Mexico Lifts Water Ban After Toxic Spill, Precautions Remain ATSDR Named
Epoch Times -- 8/16/2015 New York, NY

New Mexico Lifts Water Ban After Toxic Spill, Precautions Remain ATSDR Named
Arleen Richards, Epoch Times August 16

New Mexico departments of Environment, Health, and Game & Fish made the long-awaited announcement Saturday night to lift the bans on the Animas and San Juan rivers' drinking water systems that were closed after toxic wastewater from an abandoned gold mine was accidentally released into the water on Aug. 5.

In a [press release](#) on Aug. 15, New Mexico Environment Department Secretary Ryan Flynn, stated, "The waters of the Animas and San Juan rivers are now meeting all applicable water quality standards." The ban on the public's use of the rivers for recreational use was concurrently lifted.

But precautions remain as New Mexico officials continue to assess the long-term effects of the accident.

Contamination

Both rivers were closed in New Mexico following the spill that occurred when a cleanup crew hired by the EPA accidentally unearthed a plug at the top of the King Gold Mine in Colorado, releasing 3 million gallons of toxic waste into a creek that fed the Animas River. The mustard colored plume washed into New Mexico's San Juan River, which is a primary water source for the Navajo Nation.

The toxic waste, which had heavy metals such as copper, cadmium, arsenic, lead, and aluminum, eventually reached Utah's Lake Powell—a huge reservoir 300 miles downstream that feeds the Colorado River and supplies water to the Southwest.

Local, state, and Navajo Nation officials conducted independent and collaborative testing of water levels over the course of the past week and issued states of emergency. Federal officials also participated in the testing.

According to the release, data from continued water sampling and analysis conducted by state officials since Aug. 7 now show that all water contamination levels are within acceptable standards established to protect human health.

"EPA crews pumped water into the river to dilute the high levels of mercury, arsenic, and lead," reports New Mexico television station KOAT 7. The highest test results had shown waste containing 3,500 times the safety levels of lead.

Despite river waters now returning to normal, riverbanks remain discolored and residents are cautioned to use "prudent health practices" during recreational activities.

Precautions

Residents were warned by the Agency for Toxic Substances and Disease Registry (ATSDR) that the sediment still staining the river banks may be toxic so cautioned the public to refrain from drinking untreated water from the rivers.

Officials also advised that contact with tainted surface water should be followed by a thorough soap and water wash.

Department of Health Cabinet Secretary Retta Ward urged the public to wear suitable clothing and use safety gear, according to the release. She also recommended taking extra care not to ingest the untreated water. "When you consume untreated water from surface sources, you run the risk of ingesting harmful bacteria, parasites, viruses, and other potential contaminants," she said.

Impact on Fishing

Eating fish from the affected waters is still off limits until further notice while officials continue to test contamination levels.

Alexa Sandoval, director of New Mexico's Game and Fish Department said, "The Department suggests that anglers practice catch and release of fish in the Animas and San Juan rivers that have been impacted by the spill," according to the release.

The Department of Game and Fish is working to determine the level of contamination in fish and the public will be notified of the test results, said Sandoval.

Long-term monitoring for fish contamination will be required since storm run-off can still wash toxic sediment into the riverbed, said EPA administrator Shaun McGrath, according to a USA Today report.

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2. Animas River reopens for recreational use after mine spill ATSDR Named CBS News Network -- 8/14/2015 New York, NY

Animas River reopens for recreational use after mine spill ATSDR Named
CBS News/AP August 14,

The Animas River in Colorado is back open for recreational use after a crew in July working for the Environmental Protection Agency accidentally breached a dam holding back heavy metals used in gold mining. 3 million gallons of mine waste containing heavy metals was unleashed.

The Colorado Department of Public Health and Environment announced Friday that it had collected and analyzed sediment from the river. They said the data show levels of contamination are below what would be a concern for human health during typical recreational exposure.

As a result, Sheriff Sean Smith has made the decision to open the river for recreational use.

"My primary concern is the public health and safety of our community," he said.

Sheriff Smith said the reopening of the river for recreation would be effective Friday, Aug. 14 at noon.

On Thursday sampling results released by the U.S. Environmental Protection Agency showed high levels of toxic heavy metals in the river following the spill.

The federal agency released its testing data following increasing public pressure.

The test results show water samples taken from the Animas River near Silverton, Colorado, in the hours after the spill contained lead levels more than 200 times the acute exposure limit for aquatic life and more than 3,500 times the limit for human ingestion. The arsenic levels were 823 times above the limit. And cadmium levels were 33 times higher.

Earlier this week Gov. John Hickenlooper put an iodine tablet in a bottle of Animas River water to kill bacteria before taking a gulp. He was trying to prove the river was back to normal.

New Mexico's environment secretary criticized Colorado's governor for drinking water from the contaminated river.

The Farmington Daily Times reported that Secretary Ryan Flynn told residents there Wednesday night that the move was irresponsible and sent a bad message. He said Hickenlooper may as well have lit 15 cigarettes at once.

The mine waste spill was also not expected by the mine's owner, CBS Denver reports.

"Disbelief, just utter devastation, a little bit of incomprehension when I first saw the pictures last Thursday," mine owner Todd Hennis said.

Hennis said the EPA forced him to allow access to his mine four years ago. He did not want to give the EPA access to investigate the leakage from his mine but said he was fined daily.

"When you're a small guy and you're having a \$35,000-a-day fine accrue against you, you have to run up the white flag," he said.

The Agency for Toxic Substances and Disease Registry recommends several health practices for those who come in contact with the Animas River water including: not drinking from it unless it is treated, washing hands thoroughly with soap and water, washing clothes after contact and avoiding areas where there is visible discoloration with the sediment and surface water.

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3. Intel air-quality report shows no health issues ATSDR Named Rio Rancho Observer -- 8/16/2015 NM

Intel air-quality report shows no health issues ATSDR Named
The federal Agency for Toxic Substances & Disease Registry has concluded Intel does not produce emissions that place the health of the community at risk.

Aug 16, 2015 ANTONIO SANCHEZ Albuquerque Journal

After a 10-year investigation, a federal agency has concluded Intel does not produce emissions that place the health of the community at risk.

The Agency for Toxic Substances & Disease Registry, a sister agency of the Centers for Disease Control, published the results of its final health consultation on Thursday.

ATSDR will host a public meeting Sept. 2 from 6:30 to 9 p.m. at the Old San Ysidro Church in Corrales, where the agency will discuss the report and answer questions from the community.

The investigation began in 2005 after the agency received a petition from a community group a year earlier to determine if Intel's air emissions posed any public health concerns. ATSDR filed an initial report in 2009 of its findings, saying the agency needed to conduct more monitoring to determine the health impact of the plant's emissions.

The report states the plant's crystalline silica emissions were below levels that would cause health effects. Also, reported findings of carbon monoxide in the air as a result of Intel's work were measured below levels of concern and met the Environmental Protection Agency's National Ambient Air Quality Standards.

The report states the agency assessed pulmonary disease, amyotrophic lateral sclerosis (ALS) and environmental odors in the Rio Rancho and Corrales areas. The agency found no indications of idiopathic pulmonary fibrosis, the scaring of lung tissue, to nearby residents due to Intel emissions. However, the agency could not determine whether there was an increase of ALS in the area.

Community reports of environmental odors were reported as possibly related to the plant's air emissions. The report states that odors might also be from the crematorium near the northeast side of Intel.

The agency evaluated Intel's outdoor air emissions from 1989 to 2012 and work and documents from Intel, the New Mexico Department of Health, New Mexico Environment Department, U.S. Environmental Protection Agency, Corrales Residents for Clean Air and Water (CRCAW), community groups and individual residents.

Intel spokeswoman Natasha Martell Jackson said the report "validates the environmental improvements in the work that Intel has made in collaboration with the community environmental working group."

"We're going to continue to work with the community and government agencies to really engage the community and work to reduce our overall environment footprint," she said.

John Bartlit, who chairs the Community Environmental Working Group, which has met regularly over the years with Intel to discuss environmental concerns, said although he needs more time to read and absorb the agency's report, he's glad the report has been published and is available to the public.

"I'm glad that it's out; it's been a long time coming," he said.

Bartlit said he encourages area residents to read the report and attend the agency's public meeting in September.

Marcy Brandenburg, member of the CRCAW, said Friday she disagrees with the report's findings, contending Intel's emissions have led to higher reports of ALS and pulmonary fibrosis.

"The report is worthless, faceless and means absolutely nothing to the people who have died and are dying of Lou Gehrig's Disease and pulmonary fibrosis," she said.

Brandenburg said she will speak out against the agency's study during September's public meeting alongside other members of CRCAW.

She said the agency took 11 years to complete the report when it initially said it would take two years.

"That's like telling your math teacher, 'I'm really sorry I didn't finish that algebra test six years ago, but please give me my high school diploma,'" she said.

The report can be found on the agency's website, atsdr.cdc.gov, as well as at Esther Bone Memorial Library and the Corrales Community Library.

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4. Animas River back open for recreation ATSDR Named Pine River Times -- 8/17/2015 CO

Animas River back open for recreation ATSDR Named
State health department says not to drink untreated water from river
TIMES STAFF REPORT, August 14

La Plata County released the following late Friday morning:

The Colorado Department of Public Health and Environment has collected and analyzed sediment from the Animas River. The data show levels of contamination are below what would be a concern for human health during typical recreational exposure.

Based on this statement from the state health department, Sheriff Sean Smith decided to open the river to recreational use with the attached health advisory from the state health department.

"My primary concern is the public health and safety of our community," Smith said. "In an abundance of caution, with the consultation of all our partner agencies, I issued the order to close the river to recreational uses on Thursday, August 6. With the release of preliminary results from the state health department and its accompanying recommendation, I am opening our river for recreation effective Friday, August 14, 2015 at noon with the health advisory."

Sediment is just one indicator of a healthy river, and there is some level of contamination in most Colorado rivers because of past mining activities and the geology of the state. The Colorado Department of Public Health and Environment does not anticipate adverse health effects from exposure to contaminants detected in the water and sediment during typical recreational activities. The Agency for Toxic Substances and Disease Registry recommends the following recommendations are prudent public health practices regarding contact with sediments and surface water:

- .Don't drink untreated water from the river.
- .Wash hands thoroughly with soap and water after contact with the sediment and surface water.
- .Avoid contact in areas where there is visible discoloration in sediment or river water.
- .Wash clothes after contact with sediments and surface water.

In addition, the EPA sediment samples collected in the Animas River from Baker's Bridge to north of Durango have been analyzed but not yet validated. EPA has done a preliminary review of the data which included a comparison to background to determine if the metal concentrations are consistent with pre-incident levels. Metal results that exceeded pre-incident levels were subsequently compared to risk-based screening levels. These preliminary results indicate that minor exceedances of background concentrations were observed for antimony, lead, silver, thallium. However, comparison to risk-based screening values found these exceedances to be below risk screening levels.

The review and interpretation of these data was a collaborative effort that included state and local members of the unified command. Once EPA sediment data is validated, it will be posted online at: <http://www2.epa.gov/goldkingmine>

While conditions in the Animas River today have been determined safe for recreational use, irrigation ditches that draw from the river currently are being flushed, and agricultural users should continue to exercise patience until this process is complete.

La Plata County has flushed and allowed use of some irrigation ditches for watering crops such as wheat and alfalfa. The county is systematically working to reopen all ditches. Operators of ditches that use water from the Animas River are asked to call the La Plata County Call Center at 970-385-8700 so officials can coordinate reopening of all river head gates. Flushing may cause local, temporary discoloration of the Animas River, which should clear quickly.

Gardeners who use water from the Animas River and grow leafy vegetables and root crops should call the CSU Extension office at 970-382-6463. Answers to questions are site and crop specific.

The Colorado Department of Agriculture State Veterinarian's Office is confident that water from the Animas River can be used to water livestock. "The information we have received shows that water quality levels are comparable to those prior to the spill," said Dr. Carl Heckendorf, state veterinarian for the Colorado Department of Agriculture. "We will continue to monitor the situation and will provide updates if it becomes necessary."

Local, tribal, state and federal agencies will continue to test water and sediment routinely and will respond quickly to any potential issues.

Incident information is posted to the La Plata County website at <http://www.co.laplata.co.us/emergency>, San Juan Basin Health Department's Website at www.sjbhd.org, on Facebook at www.facebook.com/LaPlataCounty, and <http://www.facebook.com/sanjuanbasinhealth>. Data is posted to Colorado Department of Public Health and Environment website at <https://www.colorado.gov/pacific/cdphe/animas-river-spill>, at EPA's website at <http://www2.epa.gov/goldkingmine>. La Plata County has set up a call center for questions from citizens at 385-8700, open from 8:00 a.m. to 6:00 p.m.

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5. Tianjin blasts: fears of cyanide pollution as Chinese officials lambasted CDC Reference Guardian -- 8/17/2015 London, UK

Tianjin blasts: fears of cyanide pollution as Chinese officials lambasted CDC Reference
High levels of sodium cyanide have been detected by wastewater monitors amid growing anger
at the blasts which killed at least 114 people

Tom Phillips in Beijing 17 August

Alarming levels of sodium cyanide have been found at wastewater monitoring stations in the disaster-stricken city of Tianjin almost five days after a series of deadly explosions claimed at least 114 lives and sparked intense criticism of the Chinese government.

At a press conference on Monday morning, Bao Jingling, the chief engineer from Tianjin's environmental protection bureau, said excessive levels of the toxic chemical had been detected in surface wastewater at the blast site. The highest levels detected were 27 times acceptable limits.

Prosecutors have been ordered to investigate possible dereliction of duty and abuse of power that may have contributed to Wednesday night's blasts. "We must thoroughly investigate [the incident] and hold accountable all those responsible," state media quoted Premier Li Keqiang as saying.

"We must give an answer for families of the victims, an answer for all residents of Tianjin, an answer for all Chinese people, and an answer for history."

For days authorities have been scrambling to contain the fallout from the explosions that rocked Tianjin, a major port city around 75 miles east of Beijing, last Wednesday night, reducing an industrial estate on its outskirts into a debris-strewn wasteland.

About a hundred people whose residences were damaged in the disaster protested on Monday outside the Tianjin hotel where officials have held daily news conferences, calling for compensation from the government.

Displaced families and relatives of missing firefighters had already taken to the streets over the weekend to demand answers.

The explosions came after a fire broke out at a warehouse where as yet unknown quantities of hazardous chemicals including sodium cyanide are thought to have been stored.

Exposure to sodium cyanide – a white crystalline or granular powder with a variety of industrial uses – can be “rapidly fatal”, according to the US Centers for Disease Control and Prevention.

At least 70 people are still missing following the disaster, Gong Jiansheng, a Tianjin official, said on Monday. That number is thought to include many firefighters who tried to control the initial blaze and were caught up in the explosion.

There were reports over the weekend that 70 times the permitted quantity of sodium cyanide had been stored at the warehouse.

He Shushan, Tianjin’s deputy mayor, said “all sodium cyanide within 3km of the blast zone would “be collected and neutralised before Monday evening”.

During a visit to the disaster zone on Sunday, China’s prime minister, Li Keqiang, vowed to identify and punish those responsible for the calamity.

“We owe the families of victims, Tianjin people and all Chinese an answer,” he said, according to Xinhua, China’s official news agency.

Advertisement

Li ordered environmental officials “to keep monitoring the environment around the clock and release accurate, authoritative environment information as the public are highly concerned about the air, water and soil quality around the blast site,” according to Xinhua.

However, nearly five days after the disaster anger and frustration is rising. China’s state media has lashed out at the local government’s sluggish response to the disaster and its lack of transparency.

“During the first dozens of hours after the blasts, there was scant information offered by Tianjin authorities,” the [Global Times complained on Monday](#) in an editorial criticising their ‘fumbling’ response.

"Tianjin is not an exceptional case in terms of the inadequate disaster response work," added the newspaper, which is controlled by Beijing.

The China Daily warned that a lack of concrete information about the situation in Tianjin had spawned multiple conspiracy theories.

"These conspiracy theories will build up a head of steam unless the government unravels the mysteries surrounding the incident with a thorough and transparent probe that is able to answer people's questions," it said.

There has been particular anger over how the government allowed a warehouse storing hazardous chemicals to operate so close to residential communities where thousands of people lived.

"Nobody told us that there were chemicals, or I would never have chosen to live here," Liu Xuerui, a 27-year-old local whose home was damaged told the China Daily.

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6. Russia suspends sale of three types of US wine MENAFN News -- 8/17/2015 Amman, Jordan

Russia suspends sale of three types of US wine
MENAFN - The Journal Of Turkish Weekly - 17/08/2015

Russia's public health watchdog Rospotrebnadzor has banned the sale of three types of US wines, in which the concentration of dangerous chemicals exceeding the standards was found.

Canada has filed a request with the World Trade Organization for 3 billion in tariffs a year to be imposed upon imports from the United States, including meat, wine and produce.

The organization said that the ban put due to the "violations of legislation in the field of sanitary and epidemiological welfare of the population" refers to the dry red wine Geyser Peak Merlot manufactured by Geyser Peak Winery, the sweet white wine Crane Lake Moscato produced by Crane Lake Cellars, and the semi-dry white wine Gnarly Head Chardonnay manufactured by Delicato Family Vineyards.

"Batches of the mentioned American alcoholic products, which were not complying with current legislation, are withdrawn from circulation," Rospotrebnadzor said on its website, adding it will continue with the control and supervision activities in relation to this issue.

Rospotrebnadzor said that the examination has found high concentrations of phthalate chemicals in Gnarly Head Chardonnay, and high levels of both phthalate and bifenazate pesticide in Geyser Peak Merlot and Crane Lake Moscato.

Phthalates are the first class of danger according to the sanitary and toxicological indicators, capable of causing functional, and other organic changes in the central and peripheral nervous system, the endocrine system, as well as to cause cancer and problems with infertility in both men and women.

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7. Fukushima operator's mounting legal woes to fuel nuclear opposition

Reuters -- 8/17/2015 New York, NY

Fukushima operator's mounting legal woes to fuel nuclear opposition
IWAKI, Japan Kentaro Hamada Aug 17 Reuters

Four and a half years after the Fukushima disaster, and as Japan tentatively restarts nuclear power elsewhere, the legal challenges are mounting for the crippled plant's operator.

They include a judge's forced disclosure of a 2008 internal document prepared for managers at Tokyo Electric Power Co warning of a need for precautions against an unprecedented nuclear catastrophe.

Also, class actions against Tepco and the government now have more plaintiffs than any previous Japanese contamination suit and, overruling reluctant prosecutors, criminal charges have been leveled against former Tepco executives for failing to take measures to prevent the 2011 meltdowns and explosions.

Radiation from the worst nuclear disaster since Chernobyl in 1986 forced 160,000 people from their homes, many never to return, and destroyed businesses, fisheries and agriculture.

The criminal and civil legal cases do not threaten financial ruin for Tepco, which is now backstopped by Japanese taxpayers and faces far bigger costs to decommission the Fukushima plant and clean up the surrounding areas.

Rather, the cases could further increase opposition to nuclear restarts - which consistently beats support by about two-to-one - as Prime Minister Shinzo Abe's government pushes to restore nuclear to Japan's energy mix to reduce reliance on imported fossil fuel.

"The nuclear plant disaster has upended our way of life," evacuee and former beekeeper Takahisa Ogawa, 45, testified recently in a court in Iwaki, near the Fukushima power station. "We've lost the support we counted on."

PROVING NEGLIGENCE

Ogawa and other plaintiffs are seeking 20 million yen (\$160,000) each in damages from Tepco. More than 10,000 evacuees and nearby residents have brought at least 20 lawsuits against the

utility and the government over the handling of the disaster at the Fukushima Daiichi nuclear plant 220 km (130 miles) north of Tokyo.

The biggest class action, with 4,000 plaintiffs, seeks to dramatically increase Tepco's liability by proving negligence under Japan's civil law, rather than simply proving harm and seeking compensation, said lead attorney Izutaro Managi.

Japan recently approved increasing the amount of compensation payments through a government-run fund to 7 trillion yen (\$56 billion).

Prosecutors twice declined to charge former Tepco bosses over their handling of the disaster, citing a lack of evidence, but a citizens' panel overruled them last month. It's unlikely the three former executives, who will be summoned to give evidence in court, will be convicted as it is hard to prove criminal acts in this type of case, said Nicholes Benes of The Board Director Training Institute of Japan.

A first trial is not expected to start until next year at the earliest.

The legal actions against Tepco are "serious for the industry" as it seeks to gradually bring some of Japan's 43 idled nuclear reactors back online, said Tom O'Sullivan, an independent energy consultant and former investment banker.

"With potentially up to 25 reactors coming online, board members of other electric power companies must be quite nervous about what could happen if something goes wrong," he said. "Most reactors have been switched off for four years so switching them back on is going to be potentially problematic, not to mention the risk of natural disasters."

"UNAVOIDABLE"

It's unclear what bearing the various lawsuits against Tepco might have on one another, but a common thread is that it should have anticipated the possibility of a devastating quake and tsunami and taken steps to reduce the impact.

The company maintains that the severity of the 9.0 magnitude quake and 13-meter wave could not have been predicted.

But the document introduced as evidence in the shareholders' suit after a judge forced Tepco to produce it, appears to challenge that. The "Tsunami Measures Unavoidable" report, dated September 2008, was filed with the Tokyo District Court in June, but has not been widely reported.

The unnamed authors prepared the report for a meeting attended by the head of the power station and marked the document "to be collected after discussion." It's not clear whether senior executives in Tokyo saw the report at the time.

The report called for Tepco to prepare for a worse tsunami than it previously assumed, based on

experts' views.

"Considering that it is difficult to completely reject the opinions given thus far of academic experts on earthquakes and tsunami, as well as the expertise of the (government's) Headquarters for Earthquake Research Promotion, it is unavoidable to have tsunami countermeasures that assume a higher tsunami than at present," says the report.

"This is prime evidence that Tepco recognized the need for tsunami measures," said Hiroyuki Kawai, lead attorney in the shareholders' suit. "This will have an important impact on the lawsuit."

Tepco, in a court filing, counters that the document "does not mean there was a risk that a tsunami would strike and did not assume any specific tsunami countermeasures."

Asked to comment further on the internal report and the range of legal problems facing the company, Tepco spokesman Kohji Sakakibara told Reuters, "We cannot answer these questions because they pertain to lawsuits and because they suppose a hypothetical determination of negligence. However, the company is making appropriate assertions in the lawsuits and expects that in the end the courts will render fair judgments."

The shareholder lawsuit, filed in March 2012, seeks to establish responsibility for the disaster and demands 5.5 trillion yen (\$44 billion) in damages from current and former executives. A verdict is not expected for at least a year.

"This is likely to become a long battle where lawsuits go on for several decades or half a century," said Shunichi Teranishi, a professor emeritus of environmental economics at Hitotsubashi University in Tokyo, comparing it to the Minamata mercury poisoning disaster in the 1950s, where lawsuits continue to be filed to this day.

(\$1 = 124.8500 yen)

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8. Colorado Spill Heightens Debate Over Future of Old Mines

New York Times -- 8/16/2015 New York, NY

Colorado Spill Heightens Debate Over Future of Old Mines
JULIE TURKEWITZ AUG. 16, 2015

SILVERTON, Colo. — When the mine here opened in the early 1890s amid a frenzy of frontier gold exploration, its founders gave it a lofty name: the Gold King, reflecting their great hopes for finding riches in its depths. Over the next decade, the Gold King went on to become one of the most productive mines in Colorado's San Juan County, with three shifts of men working 24 hours a day in its dark corridors.

But the mine's prosperity proved short-lived. When the economy hit a recession in the early 1920s, its operators abandoned it, with open tunnels that filled with snowmelt and rainwater that eventually turned to acid, leaving behind a toxic legacy that this region has struggled to clean up for decades.

Then, on Aug. 5, the Gold King split open while a team contracted by the Environmental Protection Agency was investigating the source of a leak. The accident sent a yellow plume south into the Animas River and turned Western waterways into a mustard ribbon, causing three states and the Navajo Nation to declare states of emergency.

The accident heightened a debate here over the future of this region's old mines, and served as a reminder, some critics say, that the Gold King's toxic demise could be repeated at any of thousands of abandoned mines around the country.

"Our initial economy was largely driven by mining," Gov. John Hickenlooper said in an interview last week at the State Capitol, a building with a gold-leaf dome that pays homage to this history. "But it left us a sad legacy of these sites that are going to need significant resources to fix. Damage that no one understood or realized that this was going to be an issue."

Colorado "dodged a bullet" this month, he added, saying the effects of the spill could have been far worse had the mine been larger or more laden with metals.

In its heyday, the Gold King produced about 350,000 ounces of high-grade gold, according to its current owner, and its products landed on the fingers of well-off women in New York City, in the pockets of everyday Americans and in the vaults of banks around the world.

After the Gold King shut down, it passed from company to company, with owners who each believed that it would one day be economically feasible to reopen the mine and extract more of the gold and other minerals buried there.

Photo

Historical photos of early mining scenes in the area of Silverton, Colo., at the Brown Bear Cafe. Credit Mark Holm for The New York Times

In 1999, Steve Fearn, an engineer, acquired the mine. In 2005, when Mr. Fearn could no longer pay the mortgage, a businessman named Todd Hennis bought it at foreclosure for \$290,000. Mr. Hennis says the financial deal makes him immune to federal laws that would typically hold him accountable for wastewater spilling from his mine.

Mr. Hennis, who lives in a Denver suburb, said the mine could contain 400,000 ounces of gold and four million ounces of silver, and he hopes to turn a profit by selling.

But by 2011 the Gold King was spitting out metal-laced waste at an average rate of 176 gallons per minute, according to E.P.A. data, and it was just one of several leaky mines in San Juan County with a discharge rate that residents, local officials and experts call alarming.

In the creek below the mines, tests showed that the water had levels of cadmium and copper

more than 10 times the maximum federal standard for a waterway that sustains aquatic life, and the level of zinc was more than 40 times that federal standard.

“In highly technical terms,” said Ronald Cohen, a professor at the Colorado School of Mines, “I would say it’s really ugly.”

Today, there are two communities directly below the Gold King: Silverton, a town of 655 people that consists mostly of lifelong residents whose families came here generations ago to work in the mines, and Durango, a city of 17,000 that sits 50 miles to the south and is full of retirees and young people attracted by the spectacular hiking, biking and rafting nearby.

The Animas River — the waterway affected by the mine spill and by the daily leakage of toxic waste — is deeply entrenched in the culture and economy of both places, used for fishing, rafting, irrigation, livestock and, in the case of Durango, drinking. But for years, the subject of mine cleanup has divided these communities.

Some have argued that the mines should become a Superfund site, a federal designation that could allow the E.P.A. to build a wastewater treatment plant at an estimated cost of \$5 million.

Others, fearful of the stigma that sometimes comes with Superfund status and leery of federal involvement in local issues, are opposed.

The fault line in the debate often falls between newer arrivals, who tend to favor E.P.A. involvement, and longtime residents, who typically oppose it. The last mine in the county closed in 1991, but some Silverton mining families hold on to hope that the mines will reopen, something that would almost surely not happen if the region became a Superfund site.

In Silverton over the weekend, residents said the E.P.A.’s accident had heightened the disagreement.

On Saturday, at a spot on a dirt road just across from the Gold King, one of the mine’s former owners — Mr. Fearn, a longtime Silverton resident and engineer who is 71 — gazed out at the flow from the mine, which was still running at 600 gallons a minute, more than three times its typical rate.

He explained that a coalition of mine owners, environmental groups, government entities and residents calling itself the Animas River Stakeholders Group had been working together since 1994 to clean up these mines.

Even after the spill, he said, he favors a voluntary collaboration, rather than a federal takeover. “It’s our community,” he said. “We’d like to have a bit of a say in how it’s done.”

After he spoke, a turquoise Jeep Cherokee pulled up, and Bill Dodge, a transplant from a Washington suburb who lives part time in Silverton, jumped out wearing a blue fly-fishing hat.

He had heard about the accident and wanted to see the damage for himself. He was tired of the

slow-moving stakeholders meetings, he said, with anti-Superfund residents "who scream and yell and complain and don't cooperate."

"We need a treatment plant now," said Mr. Dodge, 74. "I think this is the sort of incident that can provoke a change in attitude."

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9. Bird flu to human transmission a 'concern', not yet high risk: CDC

CNBC News -- 8/16/2015 New York, NY

Bird flu to human transmission a 'concern', not yet high risk: CDC
16 Aug CNBC News

The worst animal virus outbreak in U.S. history has killed 48 million birds, yet no humans have been infected. Still, the head of the Centers for Disease Control's (CDC) Influenza Division says the department is "concerned" that the bird flu virus may mutate.

"These are the first of these types of viruses that we're seeing," Dr. Michael Jhung tells CNBC in an interview with "On The Money."

He added: "Because [the viruses are] new, we're a little concerned because we don't know how dangerous they could be."

Although there hasn't been any new bird flu cases since mid-June, USDA officials are preparing for a possible return of the virus this fall.

Today, the CDC considers the risk of infection to the general public as low. However, the agency is advising people to stay away from sick or dying birds. If it is necessary, Jhung said, wear coveralls, face masks and eye protection.

Cooler weather and wild bird migration could bring a recurrence of the disease, according to experts. The two states hardest hit by the outbreak were Iowa and its egg-laying chickens, and Minnesota's turkey population.

Thus far, the biggest casualty of the outbreak has been the effect on food inflation, namely higher egg prices.

According to market research firm Urner Barry, Midwest wholesale egg prices have risen by a wallet-busting 135 percent, from \$1.19 on April 22 to \$2.80 per dozen more recently. Some analysts are predicting the price of a dozen eggs could climb as high as \$6.00.

The CDC's Jhung says they are "looking very closely at the virus to see if it has traits that could cause severe disease."

While Jhung stressed "this bird flu outbreak in the United States is not the start of a pandemic," he did tell CNBC that the agency is "preparing for human cases of infection with this bird flu virus, even though there have been none.

"We don't want to see any, but we are getting ready in case there are cases of human infection," he added.

The concern is that a flu strain could make the jump from animals to humans, which is rare but within the realm of the possible. According to the World Health Organization (WHO), most avian flu varieties cannot infect humans, yet some strains--such as A(H5N1) and A(H7N9)--have caused "serious disease" in people.

Jhung says officials are "looking at the virus itself to see if it has any traits that might make it cause more severe disease in people, or could be more easily transmittable." Just as seasonal flu viruses change in "little ways" during the flu season, other flu viruses can change in "big ways," he said.

There is one thing Jhung was able to rule out: bird flu virus cannot be transmitted through food. "There's no evidence to suggest you can get bird flu from eating properly cooked poultry or eggs," he said.

If a bird or person is infected with two different kinds of flu virus, sometimes genetic material could be swapped and "create a brand new virus with certain traits" that could be "more easily transmissible to people," Jhung said, which could easily become a pandemic.

He explained that "if that happens, we could be in quite a different situation than what we're seeing right now."

In the event bird flu cases do show up in the human population, Jhung says work on a possible vaccine is underway. "Vaccination would be one of the strategies that we could employ."

Vaccination is under development, but poultry producers are divided over whether to use vaccines on bird stocks. Earlier this year, CDC officials said they were researching a human variety, just in case.

Jhung explained the CDC has "identified some viruses that could be used....found good candidates and are holding them in a bank to see if they're needed." He said they'll be sent to manufacturers to make vaccines, "if that looks like what we'll need."

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10. Sierra Leone Has First Week of No New Ebola Cases

Time Magazine -- 8/17/2015 New York

Sierra Leone Has First Week of No New Ebola Cases

An entire village was put under quarantine
Alexandra Sifferlin

Sierra Leone has gone one full week without any new Ebola cases, a first since the start of the outbreak over a year ago.

On Monday, the World Health Organization (WHO) announced that the Ebola response has moved into “phase 3,” which means responders are working to ensure that the last known cases of Ebola in the country have not spread.

The WHO traced the final cases to a man who worked in Freetown, the capital, and then returned to his home village of Massessehbeh in a northern region in the country, called Tonkolili. The man died in a hospital while receiving malaria treatment, and a postmortem test confirmed he had Ebola. Responders put the entire village in quarantine for 21 days, bringing in water and food and providing information and support, while checking everyone daily for signs of Ebola.

Two family members of the man who died got Ebola and were treated. On Aug. 14, nearly 600 people in the village came out of quarantine and there was a celebration, the WHO said. The President of Sierra Leone, Ernest Bai Koroma, cut the quarantine tape.

Since the outbreak started, about 13,470 people in Sierra Leone have been infected with Ebola, and nearly 4,000 have died from the virus. The latest numbers available indicate that among the most affected countries of Sierra Leone, Liberia and Guinea, over 27,920 cases of Ebola have been reported and over 11,280 people have died from the disease since the start of the outbreak.

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11. Return on investment slipping in biomedical research, study says

Medical Xpress -- 8/17/2015 PhysOrg.com

Return on investment slipping in biomedical research, study says
August 17, 2015

As more money has been spent on biomedical research in the United States over the past 50 years, there has been diminished return on investment in terms of life expectancy gains and new drug approvals, two Johns Hopkins Bloomberg School of Public Health researchers say.

In a report published Aug. 17 in the Proceedings of the National Academy of Sciences, the researchers found that while the number of scientists has increased more than nine-fold since 1965 and the National Institutes of Health's budget has increased four-fold, the number of new drugs approved by the Food and Drug Administration has only increased a little more than two-fold. Meanwhile, life expectancy gains have remained constant at roughly two months per year.

"The idea of public support for biomedical research is to make lives better. But there is increasing friction in the system," says co-author Arturo Casadevall, MD, PhD, professor and chair of the W. Harry Feinstone Department of Molecular Microbiology and Immunology at the Bloomberg School. "We are spending more money now just to get the same results we always have and this is going to keep happening if we don't fix things."

Casadevall, who did the research with Anthony Bowen, a visiting scholar at the Johns Hopkins Bloomberg School of Public Health and an MD/PhD student at Albert Einstein College of Medicine in New York, says that understanding the issues that are making the scientific process less efficient is a key to remedying the underlying problems.

"There is something wrong in the process, but there are no simple answers," Bowen says. "It may be a confluence of factors that are causing us not to be getting more bang for our buck."

Among the factors, they suggest, is that increased regulations on researchers —everything from the lengthy process of gaining consent to take blood samples for a study to cataloguing every trip to a conference for government oversight—add to the non-scientific burdens on scientists who could otherwise spend more time at the bench. Some have argued that the "easy" cures have been found and that to tackle Alzheimer's disease, most cancers and autoimmune diseases, for example, is inherently more complex.

Casadevall and Bowen also cite "perverse" incentives for researchers to cut corners or oversimplify their studies to gain acceptance into top-tier medical journals, something that has led to what they call an epidemic of retractions and findings that cannot be reproduced and are therefore worthless. "The medical literature isn't as good as it used to be," Casadevall says. "The culture of science appears to be changing. Less important work is being hyped, when the quality of work may not be clear until decades later when someone builds on your success to find a cure."

One recent study estimated that more than \$28 billion, from both public and private sources, is spent each year in the United States on preclinical research that can't be reproduced and that the prevalence of these studies in the literature is 50 percent.

"We have more journals and more papers than ever," Bowen says, "but the number of biomedical publications has dramatically outpaced the production of new drugs, which are a key to improving people's lives, especially in areas for which we have no good treatments."

For the study, the researchers searched through public databases for published medical literature, looked at NIH investment data, FDA new drug approvals, data on life expectancy gains and other similar data.

The authors acknowledge that new drug approvals and life expectancy rates are not the only measures by which to judge the efficiency of biomedical research. But, they argue, when it comes down to it, when someone is sick, they either need medicine or surgery to save their lives and many times the medicines haven't been developed. Also, they say, life expectancy is a good measure of the overall system, because gains have been made due to research into seat belts and

pedestrian safety as well as due to medical therapies.

Casadevall says that many of the best drugs being used to treat conditions today were developed many decades ago, including insulin for diabetes and beta-blockers for cardiac conditions. From 1965 to 1999, the NIH budget grew exponentially. Over the next four years, the budget doubled before a steady decrease from 2003 to 2014, which is larger than apparent because of the rapidly rising costs of scientific experiments. The cost per new drug, in millions of dollars of NIH budget, has grown rapidly since the 1980s, they say.

He doesn't doubt that more cures are out there to be found and that a more efficient system of biomedical research could help push along scientific discovery.

"Scientists, regulators and citizens need to take a hard look at the scientific enterprise and see which are problems that can be resolved," he says. "We need a system with rigor, reproducibility and integrity and we need to find a way to get there as soon as we can."

"Increasing disparities between resource inputs and outcomes, as measured by certain health deliverables, in biomedical research" was written by Anthony Bowen and Arturo Casadevall.

Provided by: Johns Hopkins University Bloomberg School of Public Health

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12. New bio-containment system unveiled in Georgia CDC named Terra Daily -- 8/14/2015 Gerringong, NSW, Australia

New bio-containment system unveiled in Georgia CDC named
by Richard Tomkins Dobbins Air Reserve Base, Ga. (UPI) Aug 14, 2015

A containerized bio-containment system has been unveiled in Georgia by the U.S. State Department and the U.S. Air Force Reserve.

The containerized unit is a self-contained, roll on, roll off solution that can be used on commercial and military aircraft and easily decontaminated and stored indefinitely without significant maintenance.

The State Department said it was developed leveraging lessons learned from conducting high-risk medevac missions, such as the evacuation of Ebola victim from West Africa. It was developed by the State Department and MRIGlobal with contributions from the Paul G. Allen Family Foundation.

Dobbins Air Reserve Base and its 94th Airlift Wing were chosen by the State Department as the host for the system because of the installation's proximity to world-class hospitals that can treat patients infected with highly contagious pathogens and the headquarters of the U.S. Centers for Disease Control and Prevention, the Air Force said.

"Along with our strategic location to the Center for Disease Control (and Prevention) and Emory Hospital, we are also able to provide the logistics and security for delivery of incoming patients," said Col. Brent Merritt, the 94th AW commander. "Cobb County and the metro Atlanta area have a tremendous amount of resources."

"There is nothing like this out there right now," said. Dr. Thomas Sack, the president of MRIGlobal. "We are ready for the next threat. These can safely transport patients while keeping the aircrew safe."

MRIGlobal, headquartered in Kansas City, Mo., is a contract research organization

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13. China warehouse explosion: Tianjin workers race to clear site of deadly chemicals before it rains

Independent, The -- 8/16/2015 London, UK

China warehouse explosion: Tianjin workers race to clear site of deadly chemicals before it rains

Fears potential showers could create clouds of toxic gas

Adam Withnall 16 August 2015

Chinese officials face a race against time to clear toxic chemicals from the site of the Tianjin warehouse explosion, amid fears the blast may have released hundreds of tons of toxic gas into the air.

Soldiers have joined rescue workers in gas masks and hazard suits in the port city where the death toll from Wednesday's massive explosion has risen to 112. Another 95, the majority of whom were firefighters, remained missing.

Officials confirmed the warehouse where the blast occurred was used to house more than 100 tons of sodium cyanide, a potentially deadly substance.

The presence of the chemicals was confirmed by Shi Luze, the chief of staff of the People's Liberation Army's Beijing Military Region.

He said workers were trying to clear the area before possible rain showers, which could create toxic gas.

The government has faced calls to extend its 3km exclusion zone around the site, though Shi said the toxins represented no danger to people outside the evacuated area.

Fire crews were criticised for using water to douse flames in the initial fire which may have contributed to the blasts, given the volatile nature of the chemicals involved.

Greenpeace said tests around the blast site showed that water supplies were not severely contaminated with cyanide, but that they did not "disprove the presence of other hazardous chemicals in the water".

"Greenpeace reiterates its call for authorities to implement a comprehensive survey of hazardous chemicals currently present in air and water supplies and make public all information," it said.

Shockwaves from the blast itself were felt by people in apartment blocks several kilometres from the warehouse, and the larger explosions registered as seismic events with the US Geological Survey.

More than 6,000 people have been displaced since, and a group sheltering in a school near the site was moved on Saturday for fear that a change in wind direction could bring toxic gases their way.

"I'm very worried that these dangerous chemicals will harm my health," said Zhang Yinbao, who works in the chemical industry and whose apartment building is only 800 metres from the blast site.

The Chinese premier Li Keqiang travelled to Tianjin on Sunday and met with those who had been injured and evacuated. His visit coincided with an order from Tianjin officials for a city-wide check of potential fire safety violations.

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14. World food supply at growing risk from severe weather ScienceInsider -- 8/13/2015 AAAS, Washington, DC

World food supply at growing risk from severe weather
Erik Stokstad 13 August

In 2007, drought struck the bread baskets of Europe, Russia, Canada, and Australia. Global grain stocks were already scant, so wheat prices began to rise rapidly. When countries put up trade barriers to keep their own harvests from being exported, prices doubled, according to an index of the Food and Agriculture Organization of the United Nations. Just 3 years later, another spike in food prices contributed to the Arab Spring uprisings.

Such weather-related crop disasters will become more likely with climate change, warns a detailed report released today by the Global Food Security (GFS) program, a network of public research funding agencies in the United Kingdom. "The risks are serious and should be a cause for concern," writes David King, the U.K. Foreign Secretary's Special Representative for Climate Change, in a foreword to the report.

To create the lengthy evaluation, dozens of scientists, policy wonks, and industry experts examined the global food system and its vulnerabilities to severe weather. They created a “plausible” worst case scenario: drought hitting four key staples—wheat, rice, corn, and soybeans—simultaneously. (The worrying precedents are a drought in 1988 to 1989 that cut yields of corn by an estimated 12% worldwide and soybeans by 8.5%, and a 2002 to 2003 drought that afflicted wheat and rice to a lesser extent.) If such a calamity struck next year, it would likely cause the price of grain to triple, the researchers suggest.

The chance of major global crop failures of this magnitude will increase with climate change, as drought, flooding, and heat waves strike fields more often. To estimate the odds, the researchers turned to existing models of how crops respond to temperature, precipitation, and other factors. By 2040, severe crop failures previously estimated to occur once a century are likely to happen every 3 decades, the report finds. The researchers emphasize that the risk analysis is preliminary. The report also highlights recent research indicating that the ever larger volumes of globally traded food raise the risk of large price shocks. Biofuel mandates, in which corn and other crops are turned into fuel, are thought to exacerbate the problem by cutting grain surpluses.

To sketch out possible economic and human impacts on a range of countries, the committee interviewed 50 experts from academia, government, and industry. Hardest hit would be developing countries in Sub-Saharan Africa, such as Ethiopia, the authors note in an annex to the report, where people would go hungry. Protests might erupt in middle income countries that depend on food imports, including Egypt. Consumers in rich countries, in comparison, would not see much of an effect on their wallets or dinner tables.

“Action is urgently needed to understand risks better, improve the resilience of the global food system to weather-related shocks and to mitigate their impact on people,” said Tim Benton, a population ecologist at the University of Leeds in the United Kingdom, who heads the GFS program, in a statement. The committee recommends coordinated international action, such as creating an early warning system for price spikes, and improving agricultural insurance to help farmers cope with climate change. But in dire cases, the report cautions, brace for the worst: “Governments and businesses need to prepare people for not being able to eat certain crops or products anymore.”

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15. Apparent ‘pay to cite’ offer sparks Internet outrage **ScienceInsider -- 8/14/2015 AAAS, Washington, DC**

Apparent ‘pay to cite’ offer sparks Internet outrage
John Bohannon 14 August

Scientists are erupting in outrage on this otherwise sleepy August day. The cause? Cyagen, a purveyor of transgenic research mice, is seemingly offering its scientist customers cash if they

cite one of their products in a published paper. But a company spokesman says it's all a misunderstanding.

The saga began late this past June, according to Cyagen spokesman Austin Jelcick, when the company sent out an email promoting a special offer. It was titled: "Cite us in your publication and earn \$100 or more based on your journal's impact factor!"

In recent days, some bloggers and Twitter users took note—and expressed outrage. At best, some argued, the offer was a seamy inducement. At worst, it amounted to a kind of payola scheme—and a potential financial conflict of interest that researchers should disclose.

"If someone receives money from [a company] and their publication discusses that company's products, then this needs to be declared in the paper," prominent science blogger Ben Goldacre wrote today. He also reposted a list of the 164 papers that acknowledge using Cyagen's transgenic mice, none of which declare the deal as a potential conflict of interest. Goldacre encouraged journal editors to investigate the authors for receiving "undisclosed funds in exchange for a citation."

The Internet reaction was swift. "I got this email & didn't even read it," read one Tweet from @robgpoole. "Totally outrageous. Can the commodification of evidence be reversed?"

At Cyagen, officials are struggling to keep up with the hate mail. The offer was months old, Jelcick notes, but it was "suddenly blowing up on us."

But the deal is not exactly what it seems at first glance, Jelcick says. For one thing, it is for store credit, not cash. And the "citation" that Cyagen asks for is nothing more than a mention in the methods section of a paper if Cyagen mice were indeed used for the experiment—something that is already required by most journals, in part to assist in faithfully reproducing an experiment. So, in essence, the company was rewarding researchers for something they already do.

Meanwhile, two of the authors from the list of 164 papers say they aren't sure they see a problem. "I do not see a conflict of interest," developmental biologist Vincent Christoffels of the University of Amsterdam in The Netherlands wrote in an email. "In my opinion this is not different from any other discount you often get when buying lab equipment, antibodies, transgenic services etc. Just makes science a little less expensive... [R]egardless of any discount they give, Cyagen is mentioned in the methods section of any paper containing data involving their services. And the choice of journal is also not influenced by the discount."

Neil Shubin, an evolutionary biologist at the University of Chicago in Illinois, acknowledged using Cyagen mice in a paper published 22 December 2014 in the Proceedings of the National Academies of Science. The paper declares no conflict of interest (COI). "We didn't get the discount for the work of the paper... so I don't see the need to either acknowledge it or list it as a COI," Shubin wrote in an email. "We listed it in methods in a level of detail where others could repeat our efforts."

"In general," Shubin continued, "if an investigator gets a special discount from a vendor, then they receive a kind of financial support to be acknowledged in the acknowledgments section. I'm not sure that this kind of discount from a vendor rises to the level of COI because it could not reasonably be construed to bias results, interpretation, etc."

Goldacre isn't convinced. "It took a long time to get researchers and journals to take financial conflict of interest seriously," he wrote in an email. "Along the way, various interest groups have tried to argue that their particular specific financial incentive won't really influence behavior, so it shouldn't be declared. But nobody serious [sic] thinks a financial 'conflict of interest' automatically proves that you are a corrupt scientist. It is simply a transparent declaration of a condition, so that others can be aware. And also, realistically, to set a cultural norm so that there is no wiggle room or ambiguity about declaring the very big financial stuff."

The offer, by the way, is still good, Cyagen says. But the company is considering backtracking on the formula for payout, which is currently \$100 times the Impact Factor of the journal, a much-maligned metric of journal importance. So a mention in a journal with an impact factor of 30 would be worth \$3,000. "We're considering switching to an equal payment for any journal," he says, "so we can distance ourselves from that whole debate."

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16. Corn Wars

New Republic, The -- 8/16/2015 Washington, DC

Corn Wars

The farm-by-farm fight between China and the United States to dominate the global food supply.
Ted Genoways New Republic

On September 30, 2012, agents from the FBI contacted U.S. Customs and Border Protection at O'Hare International Airport in Chicago with an urgent request. They wanted bags from two passengers on an outbound flight to Beijing pulled for immediate inspection. The passengers didn't track as dangerous criminals: Li Shaoming, president of Beijing Kings Nower Seed Science & Technology, a large Chinese agricultural company that develops corn, rice, cotton, and canola seeds, and Ye Jian, the company's crop research manager.

In Li's luggage, agents found two large Pop Weaver microwave popcorn boxes. Buried under the bags of unpopped snack kernels were roughly 300 tiny manila envelopes, all cryptically numbered—2155, 2403, 20362. Inside each envelope was a single corn seed. In Ye's luggage, agents found more corn seeds hidden amid his clothes, each one individually wrapped in napkins from a Subway restaurant. Customs officers were dispatched to the gate area for the Beijing flight, where they found the two men and conducted body searches. Still more corn seeds, also folded into napkins, were discovered in Ye's pockets.

Meanwhile, at a different gate, Wang Hongwei, another Chinese national believed to be in the employ of Kings Nower (agents never learned if he worked for the company or was related to

someone who did), boarded a separate flight for Burlington, Vermont, where he had a car waiting for him to drive to Canada. FBI agents were there to follow him—though Wang, after leaving the airport parking garage, made a series of abrupt turns and managed to give his surveillance team the slip. It didn't matter. Border patrol officers were waiting when Wang pulled up to the Highgate Springs port of entry along the U.S.-Canadian border. He was selected out for a search, which turned up 44 bags of corn seeds under his seat and in his suitcases, as well as a notebook filled with GPS coordinates and a digital camera containing hundreds of pictures of cornfields. Questioned by agents, Wang would say only that he had purchased the seeds from a man named Mo Hailong, the director of international business at the Beijing Dabeinong Technology Group (DBN Group), the parent company of Kings Nower Seed.

--advertisement--

Not wanting to alert Mo, agents allowed all three men to leave the country, but their corn seeds were confiscated. Special Agent Mark E. Betten, a 16-year veteran of the FBI specializing in the investigation of intellectual property theft, had the seeds sent to an independent bio-diagnostic testing laboratory, which confirmed that they were proprietary, genetically modified hybrids. Eventually, their genetic sequencing was matched to seeds under development by Monsanto, DuPont Pioneer, and LG Seeds, which, including LG's parent company, Groupe Limagrain, comprise three of the four largest seed companies in the world. The GPS coordinates were found to correspond with farms in Iowa and Illinois, where those companies were testing the performance of new hybrids.

In December 2013, after collecting this evidence, U.S. marshals arrived at Mo's home in Boca Raton, Florida. He was taken into custody and extradited to Iowa, where he has been under house arrest in Des Moines ever since. The FBI also brought charges against five alleged co-conspirators, all Chinese, who remain at large, including the three men stopped by customs agents, and eventually against Mo's sister, Mo Yun, as well. Mo and his sister are scheduled to stand trial before a federal court in Iowa in September on charges of conspiracy to steal trade secrets. If convicted, they face up to ten years in prison and a \$5 million fine.

This may seem like a lot of post-September 11 cloak-and-dagger for a few corn seeds, but the U.S. government believes that something much larger is going on. This theft, they argue, stems from an undeniable and dangerous fact: Despite its remarkable landmass, China simply can't grow enough food to feed itself, particularly now that the country's burgeoning middle class has acquired an appetite for meat. (Most corn in China is used as feed for livestock.) Water shortages and lack of arable terrain have forced their government to buy between two and five million metric tons of American corn annually, approximately 94 percent of all corn imported into China each year.

If China hopes to feed (and pacify) its growing population while also loosening the very real stranglehold that America has on its national food supply, its farmers have to start producing a lot more corn—not just enough to meet their domestic demand in good years but enough to maintain a stockpile to offset their global market impact during bad ones. For decades, China has increased corn yields by putting more acres into production, but they're running out of arable land, and the USDA now estimates that Chinese corn consumption will rise by 41 percent by 2023, far outpacing production increases. The only tenable way for China to meet its own

demand, then, is by planting high-performance hybrids, which can single-handedly double or potentially even triple per-acre corn production. Chinese scientists haven't developed a significant corn hybrid in years. But Monsanto and DuPont Pioneer, the two American seed giants, have produced so many successful hybrids that they now control 45 percent of all the seed sold in the world.

The Department of Justice maintains that China is quietly permitting and even encouraging companies to steal American agricultural secrets right out of the ground. Acquiring the technology behind these next-generation hybrids could save companies like DBN Group—and the country—as much as a decade, and many millions of dollars, in research. And, plant geneticists familiar with the case told me, the very fact that Kings Nower Seed has brought to market—and intended to bring more—products with stolen genetics hints that the Chinese government is complicit. The theft is not hard to detect or prove; the only way that DBN Group could hope to get away with this scheme is if China were pushing such spying as a matter of policy.

In fact, a 2011 report prepared by the Office of the National Counterintelligence Executive, which advises the president on intelligence matters related to national security, listed “agricultural technology” among the targets “likely to be of greatest interest” to spies from Russia and China. “Surging prices for food,” the report stated, “may increase the value of and interest in collecting U.S. technologies related to crop production, such as genetic engineering, improved seeds, and fertilizer.” Since that report, the Department of Justice has cracked down, successfully prosecuting Chinese national Kexue Huang for stealing secrets related to organic fertilizer production and an unidentified “new food product” while he was employed at both Dow AgroSciences and Cargill, as well as Weiqiang Zhang, for theft of genetically engineered rice seeds from Colorado-based Ventria Bioscience.

What makes the case against Mo Hailong stand out is that the FBI openly acknowledges that each step of its operation, each escalation of surveillance, was approved by a federal judge under the Foreign Intelligence Surveillance Act (FISA), which requires that the investigating agency provide evidence that wiretapping is “necessary, or relevant, to the ability of the United States to protect against foreign threats to national security, such as attack, sabotage, terrorism, or clandestine intelligence activities.” The federal government, thereby, has implicitly acknowledged that it considers agricultural products both an asset and a weapon in a long-range geopolitical chess match with China, a resource of near-military value and importance, one that must be protected by all available means. By that logic, those Chinese nationals stealing corn are spies, no different—and, indeed, perhaps more important—than those who swipe plans for a new weapons system.

This may, at first glance, appear melodramatic—like Homeland in the heartland—but it is striking that the Department of Justice did not invoke FISA measures (at least not openly) in carrying out similar investigations into Dongfan Chung, a former Boeing engineer who stole trade secrets related to the Delta IV rocket and the Air Force’s C-17 aircraft, or Qing Li, who conspired to procure 30 military accelerometers, which, according to the government, “have applications in smart bombs, missiles, and calibrating g-forces of nuclear explosions.” When asked about the extraordinary use of FISA in this case, Nick Klinefeldt, U.S. attorney for the

Southern District of Iowa, who is prosecuting Mo, chose his words carefully. “The agriculture industry is important,” he said. “It’s important not just to the state of Iowa but to the United States.” In announcing the charges against Mo last July, Thomas R. Metz, special agent in charge of the Omaha Division of the FBI, went still further, saying that “identifying and deterring those focused on stealing trade secrets, propriety [sic] and confidential information, or national security information is the number two priority for the FBI, second only to terrorism.”

Think about that: The U.S. Department of Justice and the FBI now contend, in effect, that the theft of genetically modified corn technology is as credible a threat to national security as the spread to nation-states of the technology necessary to deliver and detonate nuclear warheads. Disturbingly, they may be right. As the global population continues to climb and climate change makes arable soil and water for irrigation ever more scarce, the world’s next superpower will be determined not just by which country has the most military might but also, and more importantly, by its mastery of the technology required to produce large quantities of food.

The bureau’s investigation of Mo Hailong began only after Mo made a stunning blunder. It was early May 2011, and Mo and Wang Lei, vice chairman of Kings Nower Seed at the time, were driving country roads in Tama County, Iowa, allegedly searching for a DuPont Pioneer test field. But apparently uncertain if he was in the right place or unsure of what kind of seed DuPont Pioneer was testing, Mo had Wang pull to the edge of a field, so they could question a farmer in the midst of spring planting. Mo and Wang told the farmer they had been attending an international agricultural conference at Iowa State and wanted to see someone planting a real cornfield. The farmer was dubious. Ames was nearly an hour away with nothing but expanses of cornfields in between, all at the peak of planting season. How had these two men chanced upon his field on the very day that he happened to be planting an experimental and top-secret seed under development by DuPont Pioneer?

The next day, a DuPont Pioneer field manager spotted the same car. He watched Mo scramble up the ditch bank, and then kneel down in the dirt and begin digging corn seeds out of the ground. When confronted by the field manager, Mo grew flustered and red-faced. He now claimed to be a researcher from the University of Iowa—not Iowa State—on his way to a conference. But before the field manager could question him further, Mo fled. He jumped into the waiting car, and Wang took off, swerving through the grassy ditch before fishtailing onto the gravel road and speeding away.

A few weeks later, agents from the Iowa office of the FBI sat down with DuPont Pioneer representatives for a standing meeting (which itself says something about the importance our law enforcement officials place on our corn) at their corporate headquarters in Johnston, Iowa, a northern suburb of Des Moines. A DuPont Pioneer executive mentioned the incident and explained that the company enters into exclusive contracts with farmers to grow proprietary and often genetically engineered seeds. The exact genetic sequence of successful seeds is a tightly held secret, worth many millions of dollars. The DuPont Pioneer field manager had written down the license plate number and handed it over to company security. Multinational food conglomerates like DuPont Pioneer and Monsanto have sizable security forces and highly

efficient investigatory networks. They traced the plates back to a rental car company at the Kansas City airport. Representatives there said the car had been rented by Mo Hailong.

According to court documents, an unnamed vice president and general manager from DuPont Pioneer's Chinese subsidiary told the FBI he already had reason to believe that Kings Nower Seed was somehow stealing the company's experimental seeds in order to raise clones for sale to Chinese farmers. DuPont Pioneer had recently discovered that one of DBN Group's best-selling corn seed products in China shared genetic sequencing with a male parent line that the company had genetically engineered. The executive had confronted a DBN Group executive, sarcastically congratulating him on the success of their product. The Chinese executive had allegedly cracked a knowing smile and nodded, which the DuPont executive had taken as a tacit admission. The FBI agreed to investigate.

Four months later, while the FBI was still looking into the Tama incident, a call came into the sheriff's office in Polk County, Iowa, with a report of three Asian males walking around a cornfield in Bondurant, just outside of Des Moines. Despite the strangeness of such a call, the responding deputy hurried to the field, approached the men, and took down their names: Mo Hailong Robert (Mo occasionally used the alias Robert Mo), Wang Lei, and Li Shaoming, the CEO of Kings Nower Seed. The men acknowledged that they were Chinese seed growers but claimed they were there to offer advice to the owner of the farm. When the FBI learned of the report—and recognized Mo's name—they dispatched an agent from the Omaha field office to interview the farmer. He had never heard of the three men, much less sought their advice. He told the agent he didn't even know what kind of corn he was growing, other than to say he was under contract to Monsanto. Soon after, a Monsanto field representative confirmed that this, too, was a test site for a new parent seed the company had under development.

With an emerging picture of what Mo was up to, the FBI began tracking his movements—and soon discovered that he and Wang were intending to travel together to Des Moines for events held in connection with the World Food Prize. The morning after their arrival, on February 15, 2012, the security team at DuPont Pioneer called the FBI to report "they were confident" (in the words of the subsequent report) that Mo, using an alias and fake corporate affiliation, had joined a delegation visiting their headquarters. The FBI collected the surveillance video of the tour inside DuPont Pioneer's research lab and also identified Mo on corresponding security footage from the delegation's tour of a Monsanto research facility in Ankeny later in the day. That night, agents tracked Mo to a state dinner hosted by Iowa Governor Terry Branstad in honor of Xi Jinping, then the vice president of China and now the president. The next day, Mo and Wang went together to a sports bar near the hotel where they were staying in the Des Moines suburbs. They met up with Xaoming Bao, a Chinese seed executive and former DuPont Pioneer employee whose wife was employed by the company as a corn-genetics researcher.

FBI investigators could now demonstrate that Mo had, on two separate occasions, sought to obtain experimental seeds by collecting them from secret test sites, and furthermore, it appeared he had gained the information about how to find those locations by working with corporate insiders. The FBI also discovered that while he was in Iowa, Mo had shipped hundreds of pounds of packages from a West Des Moines UPS location to his home in Boca Raton. The contents listed on the tracking sheet: "corn samples."

The theft of high-performing corn seeds from a competitor's fields is as old as the cultivation of corn. "They say that a good plant breeder always had lots of pockets," said Donald J. Lee, a professor and plant geneticist in the department of agronomy and horticulture at the University of Nebraska-Lincoln. "And when he would go visit his neighbor's plant breeding fields, they always came back full." Until recently, farmers were their own seed providers. Lee told me his grandfather, a farmer in Iowa a century ago, would select ears from each harvest to provide the seed for planting the next year. He recorded the quality of his yield, slowly identifying a set of seed characteristics that seemed to produce the best crop. In those days, it was not unusual for family and friends to share seed stock. "Maybe a neighbor would say, 'Hey, I really did good with this seed that I got from a cousin in eastern Iowa. You should try a little of this,'" Lee said. "But they were all open-pollinated populations, so those seeds were not genetically identical. In fact, probably every seed was genetically distinct."

So much genetic variability meant that farmers like Lee's grandfather would cross two varieties and get large, robust ears one year, only to find that the same two varieties produced scraggly cobs with missing kernels and dead tips the next. "So if you take a look at the historic yields of corn in Iowa and Nebraska during the teens, the twenties, the thirties—it's flat," he said.

That all changed with the arrival of Henry A. Wallace, the founder of Pioneer Hi-Bred Seeds, who Lee described as "the Bill Gates of the seed industry." Wallace, the son of the longtime president of the Cornbelt Meat Producers, first encountered the problem of genetic variation while studying corn breeding at Iowa State Agricultural College. Rediscovering Gregor Mendel's groundbreaking research on pea pods, Wallace had the key insight that the only solution to producing hearty corn hybrids was to first create genetically pure inbred varieties that could be used as "parents" year after year. Wallace initially worried that such an approach "was probably impractical because of the difficulty of doing the hand-pollinating work," but he was won over by a paper published in 1918 by Donald Jones, a chemist at the Connecticut Agricultural Station's experimental farm. Jones had successfully inbred two separate varieties of corn and then crossed them to produce a durable, high-performing hybrid. Wallace recognized that this was the key to creating seed corn with consistently higher yields, but the old problem remained: Producing these hybrids would be far too complex for the average farmer to undertake alone.

Wallace began to envision an organized way of breeding and distributing high-performing corn seed to farmers across the Midwest. A man of unusual commitment to the common good, he wrote a friend that he did not consider himself a corn breeder but rather "a searcher for methods of bringing the 'inner light' to outward manifestation." So Wallace at first conceived of a nonprofit organization, potentially run with government cooperation and even public funding. In 1921, his father, Henry C. Wallace, was appointed secretary of agriculture and might have helped spearhead such an effort. But after his father died unexpectedly at age 58 and Calvin Coolidge settled into the laissez-faire years of his presidency, Wallace saw little chance of an ambitious national program gaining traction. He decided instead, in May 1926, to start the Hi-Bred Corn Company—the world's first hybrid seed producer.

To interest farmers, Roswell Garst, Wallace's lead salesman, who later became a major seed

producer in his own right, went from one farm to the next, across 16 counties in western Iowa, giving away enough eight-pound sample bags of Hi-Bred seeds for farmers to plant half their fields. Whatever additional yield the hybrid corn produced, Pioneer would split fifty-fifty with the farmer. After several years, farmers realized that they would see greater profits by simply buying the bags of seeds, instead of sharing the surplus yield with the company.

Those shared harvests produced something even more valuable than profit for the young company: information about how the seeds performed under different growing conditions. Wallace directed a sizable chunk of his revenue back into research, hiring a team of new corn breeders to devise still more hybrids. In the early 1930s, Perry Collins, one of Wallace's researchers, developed Hybrid 307—the first corn specifically developed and marketed for drought-resistance, hitting seed dealerships just as the country spiraled into the Dust Bowl. And when Wallace was, like his father, appointed secretary of agriculture, by Franklin Roosevelt in 1933, he finally had the resources to nationally evangelize for hybrid seed, which he believed had the potential to rescue the nation from the Great Depression.

The transformation that followed was staggering. When Wallace joined Roosevelt's cabinet, less than 1 percent of America's corn came from hybrid seeds. A decade later, more than three-quarters of all corn was grown from hybrids—nearly doubling the national per-acre yield over the next 20 years. To keep this record output from depressing corn prices, Wallace created the “ever-normal granary,” under which the federal government would establish a federal grain reserve. In years of high production, the Department of Agriculture would buy corn and store it to keep prices up. In years of crop loss, the government would release the reserve to keep prices down. Wallace's plan was hugely popular, stabilizing American food prices—and winning him a spot as FDR's running mate in 1940.

But Wallace's remarkable Hi-Bred Corn had one significant drawback: It consumed far more nitrogen compounds from the soil than ordinary corn—more, in fact, than almost any other crop. During the war years, the government solved the problem by simply putting more acres into production, but after World War II, the Department of Agriculture found a different solution. Giant chemical manufacturers, like DuPont and Monsanto, had secured wartime defense contracts to produce ammonia nitrate and anhydrous ammonia to make bombs and other munitions. They had developed an herbicide known as 2,4-D as a potential destroyer of German crops and manufactured the insecticide DDT to prevent the spread of typhus-carrying lice among GIs. As soon as the war was over, DuPont turned to marketing those same chemicals for lawn and garden use as fertilizer, weed killer, and DuPont 5% DDT Insect Spray. Company advertisements from the period touted their products as “Better Things for Better Living ... Through Chemistry.” But gardens were just the tip of the iceberg. DuPont, along with other giant chemical manufacturers like Dow and Monsanto, teamed up with the grain cartels, including Cargill and Archer Daniels Midland, to lobby for congressional support for producing these compounds as large-scale agri-chemicals.

In 1953, the industry found its greatest ally, when Ezra Taft Benson took over as President Dwight D. Eisenhower's Secretary of Agriculture. (Wallace, by then, had retired from public life. He was briefly the editor of the New Republic before making a failed bid for the presidency in 1948.) Benson, a high-ranking member of the Mormon Church and a fanatical Red Scare

Republican, immediately informed Eisenhower that he was philosophically opposed to the government price supports developed by Wallace, because, to his mind, they were tantamount to socialism. He publicly referred to small farmers as “irresponsible feeders at the public trough.”

Foreshadowing today’s aggressive, pro-corporate agricultural policies, Benson argued that the only way to outcompete the collective farms of the Soviet Union and Red China was to use our superior corn and chemical technology to the fullest. The United States could, if it chose, overproduce corn to drive down international prices, and it could use the surplus as a tool of diplomatic leverage in the form of foreign aid. Instead of guns, the United States began to give our allies grain—transforming, for the first time, a food product into a weapon in the national arsenal. The only problem was that by effectively militarizing American agriculture, Benson made agri-tech a target for foreign spying.

In April 2012, Mo flew from his home in Florida to O’Hare International Airport and rented a car. An FBI surveillance team followed him as he drove along back roads through rural Illinois and northern Indiana. After about a week of this, Mo stopped one day at a farm near Monee, Illinois, advertising DuPont Pioneer seeds for sale. The farmer there later told the FBI that Mo had asked about what types of corn and soybeans he could buy, explaining that he had purchased 40 acres nearby and was planning to plant the property. The surveillance team followed Mo to a farm about 15 minutes west of Monee, where, a review of property records soon revealed, Kings Nower Seed had purchased a parcel for \$600,000 only the month before.

As agents watched Mo crisscross the Midwest, stopping at seed stores to inquire about different products, they began to suspect that he planned to plant the Illinois acreage by hand. Donald J. Lee, the University of Nebraska professor, compares stealing parent seeds to obtaining programming code without knowing what application it is intended for or what operating system it’s meant to run on. Likewise, knowing the genetic structure of a corn seed is just one part of the problem. “You don’t know the importance of those genes, unless you have yield data,” said Lee. “When did the plant mature? What’s its development profile? How did it respond to such-and-such disease?” This is what Mo appeared to be doing: setting up his own covert test farm, one that he could oversee personally.

FBI surveillance teams followed Mo to Crossroads Ag, a DuPont Pioneer seed dealer in Dallas Center, Iowa, and observed him loading bags of seeds into his trunk. When investigators questioned the owner, he said Mo paid in cash—more than \$1,500—for six bags of Pioneer Hi-Bred corn seeds. He said Mo had been purchasing seed there for two years, always asking for DuPont Pioneer’s “latest products,” but this year he had arrived with a detailed list. The owner had told Mo that he wasn’t supposed to sell him some of the specific products he was asking for, unless he had a contract agreement with DuPont Pioneer, which the owner knew he didn’t. The next day, FBI surveillance watched Mo repeat the process, buying six bags of DeKalb brand seed corn, a Monsanto product, at MFA Agri Services in Pattonsburg, Missouri.

Finally, the team followed Mo back to Adel, Iowa, where Mo unloaded some of the seed bags at

a storage facility before driving on to the farm in Illinois where the remaining bags were unloaded and, the FBI believes, seeds may have been planted. About one out of every 200 seeds in a bag of hybrid corn seed is a parent, which can be identified by planting the bag and then collecting kernels from whichever plants look different from the rest. Investigators believe Mo may have been collecting some parent seeds this way. Later, when Mo and two DBN Group employees attempted to FedEx the remaining corn seeds to an associate in Hong Kong, the FBI intercepted the packages and conducted a search of the five boxes. Each contained eight or nine gallon-sized baggies filled with seed corn, along with a handwritten numerical code identifying each hybrid.

The FBI has not revealed exactly when they applied to a FISA court for more broad-ranging investigatory powers, but the FBI's court filings show that their information on Mo and his associates became much more detailed after meetings with DuPont Pioneer executives over the summer. Top executives told agents that "the loss of an inbred line of seed would result in losing approximately five to eight years of research and a minimum of \$30 to \$40 million dollars, potentially much more." After that, the FBI tapped the men's mobile phones and tracked Mo's bank records. They collected their email from Yahoo, Google, and Hotmail, corporate documents from DropBox, and thousands of files from Mo's Apple iCloud account. The FBI used Mo's mobile phone to track his movements, bugged his rental cars to eavesdrop on his conversations, and installed a video camera outside the storage unit in Adel.

To exercise such investigatory power, the FBI had to argue that Mo was an "agent of a foreign power"—or, in other words, to persuade a judge that Mo might be acting on behalf not just of DBN Group but at the direction of the People's Republic of China. With that, the FBI had the authority to treat Mo as if he were the leader of a state-sponsored Chinese spy ring. (Klinefeldt, the U.S. attorney prosecuting the case, was evasive about whether that suspicion proved substantive. "When you start an investigation," he said, "you don't know exactly where it will lead.")

FBI investigators soon got the explicit evidence they needed to make arrests. Over a listening device installed in an Enterprise rental car, the surveillance team recorded a bizarre and inept conversation between two of Mo's associates from DBN Group, Lin Yong and Ye Jian. In the translated transcript, submitted as part of the government's case, the two men are consumed by worry that they are being followed and about the charges they could face if caught. So, as they drive around rural Illinois looking for DuPont Pioneer and Monsanto test fields from which to steal, they begin making a list of the crimes they have committed. After some back and forth, they come up with trespassing for every time they have slipped onto private property, larceny for the seeds and ears they have been stealing from the fields, and multiple violations of intellectual property protections.

"These are actually very serious offenses," Lin says.

"They could treat us as spies!" Ye interjects.

Lin, exasperated, responds: "That is what we've been doing!"

Soon after, with the harvest season nearly complete, Mo seems to have decided it was time to send to China what corn he and his associates had collected. The group drove back to the secret Illinois farm and began discussing how they would divvy up the seeds. Some would go into checked bags bound for Beijing, others would be carried to a car and driven across the border from Vermont into Canada, and some would go with Mo back to Florida, where he would ship them to China. With tickets booked for departure the following morning, the five men readied their caches of seeds—Li deciding to stash his under packets of Pop Weaver microwave popcorn. The whole group then piled into a white minivan and drove into Monee to eat at the local Subway. On their way out, one of the men, perhaps Ye, must have stuffed his pockets full of napkins.

When Soviet premier Nikita Khrushchev visited the United States at President Eisenhower's invitation in 1959, he specifically requested to see only one man: Roswell Garst, the former Pioneer seed salesman for Henry A. Wallace, who was then head of Garst and Thomas Hi-Bred Corn Company. Khrushchev had met Garst once before, when he visited the Soviet Union, and had become obsessed by the potential of hybrid corn. Khrushchev and his wife spent a day at Garst's farm near Coon Rapids, Iowa. In his memoirs, Khrushchev later wrote, "Garst gave me an entire lecture on agriculture," in which he earnestly explained that American farmers had stopped worrying about crop rotation. "Science today considers that approach outdated. And I think so, too," Garst told the Soviet leader. In past years, planting the same crop repeatedly would have attracted pests and depleted the soil of nitrogen. "Now there is no such problem. We have herbicides and other such chemical substances that make it possible to combat pests," Garst said. And there was no longer any need to plant clover or alfalfa to accumulate nitrogen. "It is more profitable for me to buy nitrogen, potassium, phosphorus, in mix form, and add this fertilizer."

On that same official visit, Ezra Taft Benson led Khrushchev on a tour of the U.S. Agricultural Research Center in Beltsville, Maryland. Benson, in his official remarks, said that there was a "constant give-and-take of information between government scientists and those in private industry," adding that "we are all working together within the framework of our capitalistic free-enterprise society to benefit our farmers, all our citizens, and people throughout the world." He listed hybrid corn first among the achievements of such cooperative efforts and introduced white-coated lab researchers who extolled the virtues of 2,4-D and chemical fertilizers. Khrushchev was unimpressed by a visit he made to a farm owned by President Eisenhower, dismissing it as "not on a scale such as we have at our collective farms and state farms." Benson later remembered that Khrushchev bragged, "We won't have to fight you. We'll so weaken your economy until you fall like overripe fruit into our hands." Benson vowed that American farms would outproduce the Soviets through superior chemistry.

By the end of the Eisenhower era, however, environmentalists began to raise concerns about the hundreds of commercial herbicides and pesticides being applied to American crops in quantities totaling hundreds of millions of pounds. Benson admonished doubters that "abandoning the use of chemicals on farms and in the food industry would result in an immediate decline in the quantity and overall quality of our food supply and cause a rapid rise in food prices paid by the

consumer.” Even when Rachel Carson documented connections between DDT and 2,4-D and elevated incidence rates of rare forms of cancer in *Silent Spring*, Benson remained unmoved. He is said to have written to Eisenhower wondering “why a spinster with no children was so concerned with genetics,” and then, as if to answer his own question, offered that Carson was “probably a Communist.” (The Eisenhower Presidential Library, for what it’s worth, contains no record of this letter.)

Benson’s war on the “socialist” price supports and farm aid programs instituted by Henry A. Wallace stalled out during the liberal-minded 1960s. But at the advent of the new decade, President Richard Nixon appointed Earl Butz, Benson’s former assistant, to become the new secretary of agriculture. Butz had grown up on a farm in Indiana and spent 30 years teaching agricultural economics at Purdue before becoming dean of the university’s College of Agriculture. Many small farmers hated him, because he had been such a vocal advocate for turning family farming into big business during the Eisenhower administration. His refrain for those families, famously, was: “Get big or get out.”

Almost as soon as Butz won approval from Congress, he canceled payments for fallow land and urged farmers to “plant fencerow to fencerow,” promising to use the emerging global economy to buttress against low prices. If our supply threatened futures, we would simply go to the world market and use our size and economic might to meet the demand and forge foreign dependence on American food in the bargain. We would defeat the Communists by making them dependent on us to feed themselves. In January 1972, Butz sold what amounted to our entire grain reserve to the Soviets. The following month, Nixon went to China and brokered a deal with Chairman Mao Zedong, allowing the importation of American corn and securing contracts for American companies to build 13 of the world’s largest ammonia-processing plants for producing fertilizer on Chinese soil.

America’s Communist foes regarded these moves as an agreement not to wage war through food. But Butz discussed these moves in terms of “agri-power,” and stated it plainly: “Food is a weapon.” To open a new front in the conflict, he supported maintaining American food superiority through yet another innovation: bioengineering feed, such as corn and soybeans. Through the miracle of science, the United States would not only produce more crops than our rivals; we would produce better crops. By 1972, scientists had already developed the ability to cut and splice protein strands in the DNA sequences of bacteria. If they could do the same with plant cells, then they could chemically insert resistance to weeds and insects. Less than five years later, a team from the University of Washington discovered that a bacterium that causes tumorlike growths on plants did so by inserting its own DNA into the cell nuclei of its host plant. What they had discovered was essentially a natural form of gene splicing. By the 1980s, researchers had devised techniques for removing the bacteria genes and inserting desirable DNA sequences.

The U.S. government recognized this as technology the Soviets and Chinese could not match. Monsanto was also quick to see the market opportunity. The company had grown with the production of 2,4-D and its descendant 2,4,5-T, which were then combined to produce Agent Orange to defoliate forest cover during the Vietnam War. In 1970, in an effort to come up with an even stronger plant killer, Monsanto chemist John E. Franz hit upon an herbicide called

glyphosate, which was marketed under the trade name Roundup and had seen unmatched growth in broadleaf weed control in the agricultural industry. The only problem with Roundup: It was such an effective herbicide that farmers had to apply it carefully, spraying only early sprouting weeds, to avoid exterminating their crops.

Monsanto's engineers set about searching for a gene that would allow crops to survive exposure to Roundup. They found it in the wastewater-treatment plant of one of their own glyphosate production plants in Louisiana, where workers had noticed a range of bacteria thriving despite exposure to Roundup—and one, under lab testing, displayed total immunity to glyphosate pesticides. By 1996, Monsanto had commercially introduced soybeans that had been genetically modified to resist glyphosate—what the company termed “Roundup Ready.”

Next, researchers set to trying to find a genetic-engineering solution to the European corn borer, an insect that inflicted more than \$1 billion in losses of corn production in the U.S. and Canada each year. Since the 1960s, endotoxins produced by *Bacillus thuringiensis* (Bt), a common bacteria found in the soil, had been sold as a commercial microbial insecticide to kill moth larvae. If the specific DNA that produced Bt toxins could be isolated and spliced into corn genetic sequences, scientists believed they could create an ear of corn that would be lethal to the European corn borer. Soon, that hurdle had been cleared, and Monsanto began looking for a seed partner to market its pest-resistant corn. If it could marry its genetic modifications with Pioneer’s hybrid seeds, Monsanto believed it would have a corn seed with unmatched yield potential.

In the early 1990s, perhaps too eager to demonstrate the effectiveness of its new GMO crops, Monsanto allowed Pioneer to use its biotech to produce Roundup Ready soybeans and Bt corn—asking only for small usage fees and no royalties. For less than \$40 million, Pioneer suddenly had the technology and the sales muscle to move toward genetically modified feed crops, a growth market worth many billions of dollars. Rather than partner with Monsanto, Pioneer became its greatest competitor, entering into a joint venture with DuPont, called Optimum Quality Grains. In response, Monsanto launched a series of bitter and protracted lawsuits, and eventually, in 1999, Pioneer sold its entire remaining stock to DuPont (thus changing the name to DuPont Pioneer). In 2002, all eleven lawsuits were settled at once—as DuPont Pioneer realized that it had more to gain by paying for Monsanto’s genetics and focusing on capturing the Chinese market.

In the years since, DuPont Pioneer has increased its share of the corn-seed market in China from less than a tenth of a percent to 12 percent. (Monsanto has a 1 percent market share.) DuPont Pioneer has told Chinese officials that they should Americanize their agriculture: consolidate land, plant GMO seed, apply industrial fertilizers, subsidize the sale of planting and harvest equipment. This way, the company argues, China could dramatically increase its per-acre yield. William S. Niebur, who leads DuPont Pioneer’s operations in China, told the Des Moines Register last year that officials have listened to these recommendations with an “open ear.”

In March 2015, Mo Hailong’s attorneys filed a motion to suppress all evidence gathered from the secret recordings made of Mo and his associates, arguing that the authorization to gather those materials should never have been granted. In order to legally justify the use of FISA, surveillance

must target an “agent of a foreign power,” and the purpose of the surveillance must be to gather “foreign intelligence information.” Mo’s attorneys argue there is no evidence that Mo is an agent of the Chinese government or that his company is backed by China, so for “the first time in the statute’s history (as far as our research reveals), the [U.S.] government used FISA to investigate a trade secret dispute between two privately owned companies.”

When it comes to the Chinese form of capitalism, the line is undeniably murky. The government has taken a strong hand in recent years in encouraging the growth of China’s agricultural sector. In 2013, for example, China’s Shuanghui International entered an overvalue bid to buy Smithfield Foods, the world’s largest producer of pork. Under questioning by Congress, Smithfield insisted the purchase came without the urging or backing of the Chinese government. But after the purchase received congressional approval, Nathan Halverson at the Center for Investigative Reporting discovered that the Bank of China, the state bank of the Chinese government, had approved the \$4 billion loan for Shuanghui to purchase Smithfield in a single day—and in China, Shuanghui has touted the support the government is giving them.

In the wake of that purchase, the Chinese government has been actively consolidating the country’s seed companies, which currently number more than 5,000. This consolidation would centralize research, improving China’s ability to develop its own hybrids to compete with giants like DuPont and Monsanto, and it would also allow China to mimic the field-to-slaughter vertical integration that has given meat producers like Smithfield and Cargill such an advantage in the United States. DBN Group is a notable example of a seed company that is booming thanks to consolidation and government assistance. Founded in 1994 by seed-tech whiz kid Shao Genhuo, DBN Group has recently acquired more than 30 feed operations from the Chinese government, and the company runs China Farmer University jointly with the Chinese Academy of Agricultural Sciences. By targeting Mo and his sister Mo Yun as the leaders of the spy ring, the FBI may hope to incriminate Shao (who is married to Mo Yun)—and, ultimately, implicate Chinese agriculture ministers. But the U.S. government’s argument that the technology behind Roundup Ready soybeans and Bt corn constitutes not just trade secrets but national security secrets is a problematic one.

Companies like DuPont Pioneer and Monsanto like to maintain that they are striving only to feed a burgeoning global population. Last year, Niebur, of DuPont Pioneer China, asked, “Without China’s food security, how can we ever imagine an effective, realistic, sustainable global food-security system?” But DuPont Pioneer’s goal, of course, is not global food security or feeding the Chinese people, but rather increasing market share and profit by keeping China as a customer. And the Department of Justice has taken up the argument that such a goal is not only of importance to our economy but a matter of national security, an unsettling conflation of the interests of large corporations with that of the country itself.

Today, it’s estimated that 92 percent of American corn and 94 percent of American soybeans are GMOs, almost all of it produced by Monsanto or DuPont Pioneer, and again, nearly half of the seed sold globally. Activists in both China and the United States have raised concerns about just two corporations having so much influence over the world food supply, with so little transparency. (Despite repeated requests, DuPont Pioneer declined to participate in this story.)

But these fears, while well founded, miss the larger point of what such companies represent: the intent of the U.S. government to use food as an ever-more powerful point of leverage to wield over large, increasingly hungry nations like China. The prosecution of Mo Hailong and his circle stands as a warning to the Chinese government, issued through its proxy companies. The ears in the field, the seeds in the ground, even the pollen on the wind, are American-owned and American-protected. They are available to the world as food only if you agree to our conditions and are willing to pay our price.

Ted Genoways is a contributing editor for the New Republic and author of *The Chain: Farm, Factory, and the Fate of Our Food*.

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17. Modern life may be causing a 'hidden epidemic'

FOX News Network -- 8/17/2015 New York, NY

Modern life may be causing a 'hidden epidemic'
Michael Harthorne August 17

Could pollution be to blame for why dementia is killing more people and being diagnosed earlier than ever? That's the theory being floated by researchers involved in a study of patients in 21 countries from 1989 to 2010.

The Smithsonian reports that while dementia is typically associated with people older than 60, the study finds that diseases such as Alzheimer's are now being regularly diagnosed in people in their late 40s.

Death rates, too, are rising, particularly in the US, where American men over 75 are three times as likely and American women five times as likely to die from neurological disease than they were 20 years ago, [notes the Washington Post](#).

So what is it about modern life that's causing what researchers label a "hidden epidemic"? Lead author Colin Pritchard of Bournemouth University has a hunch. "The environmental changes in the last 20 years have seen increases in the human environment of petro-chemicals—air transport—quadrupling of motor vehicles, insecticides and rises in background electro-magnetic-field, and so on," he writes.

Researchers admit part of the increase could be explained by better treatments for cancer and heart disease, which used to kill elderly people before dementia could.

But, they argue that neither this, nor aging populations and better diagnoses, could entirely account for such a steep increase. Researchers say this is a wake-up call to make environmental changes, but not everyone is so sure.

One doctor tells the London Times, which first reported on the study, that dementia is a complicated disease that could be caused by a "complex interplay" of factors.

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18. Chattahoochee River Polluter Fined \$10 Million Atlanta Press Release -- 8/17/2015

Chattahoochee River Polluter Fined \$10 Million Atlanta
August 17, 2015 Chattahoochee Riverkeeper Press release

US District Court Judge Orinda Evans levied a \$10 million penalty on American Sealcoat Manufacturing LLC (Sealcoat) for unlawful discharge of toxic pollutants into the Chattahoochee River near Fulton Industrial Park. The Judge ruled in a Clean Water Act complaint brought by Chattahoochee Riverkeeper (CRK), which discovered and reported the dumping.

CRK filed its lawsuit against the asphalt sealant manufacturer in the summer of 2014 after discovering that it was operating without an industrial storm water permit in clear violation of the Clean Water Act, and was repeatedly and intentionally dumping toxins into a tributary that flows into the Chattahoochee River less than 1000 feet away. When CRK offered Sealcoat a settlement and assistance in remediation, the chemical manufacturer refused to cooperate, opting instead to abandon its operations and flee the state.

The court's decision, which was passed down on August 13, 2015, underlines the seriousness of Sealcoat's toxic pollution and delivers a strong affirmation that contamination of Georgia's waterways will not be tolerated. CRK's efforts are now focused on stopping the continued flow of pollutants and getting the toxic dump site cleaned up in its related litigation against the site's property owner, M&K Warehouses.

"Chattahoochee Riverkeeper is pleased that the federal court has recognized the severity of these violations," says Riverkeeper Jason Ulseth. "This ruling sends a powerful message to the industrial community and sets a strong precedent as we continue to pursue site property owner M&K Warehouses, which is equally responsible for this degradation of the Chattahoochee River."

This court ruling requires American Sealcoat to pay \$10 million in civil penalties to the U.S. Treasury and it will be up to the U.S. Department of Justice to attempt to collect the civil penalties that have been levied.

The Clean Water Act, passed in the 1970s, remains a vital tool enabling citizen's groups like Chattahoochee Riverkeeper to fulfill their mission of protecting our nation's streams and waters. Judge Evans' action in this enforcement will serve as a clear message to other potential violators that pollution will not be tolerated.

19. The marijuana legalization movement begins in the states

Center For Public Integrity -- 8/17/2015 Washington DC

The marijuana legalization movement begins in the states
Brianna GurciulloKaren MawdsleyKatie Campbell August 16

WASHINGTON, D.C. – Advocacy groups have poured millions of dollars into legalizing both recreational and medical marijuana in states across the country.

One of the most powerful and influential groups – Washington, D.C.-based Marijuana Policy Project – was behind successful recreational measures in Alaska and Colorado, two of four states that now allow recreational use. MPP organizers hope to replicate those efforts in five other states during the 2016 elections, an undertaking they say will – if successful – prove significant for the effort to end marijuana prohibition.

One of them, Arizona, is a state that conservative icon Barry Goldwater called home. It frequently makes national headlines for controversial measures on immigration and gay rights. Voters passed the state's medical marijuana program by the barest of margins in 2010.

“Out of the five campaigns that we’re running nationwide, Arizona’s definitely going to be the most heated, the most active,” said Carlos Alfaro, the Arizona political director for the Marijuana Policy Project. He plans to win voters by inundating the airwaves, unveiling billboards, organizing rallies and hosting debates.

It’s all part of the well-funded, well-organized machine that’s driving the effort toward ending prohibition nationwide. Proponents have found so much success because they have learned how to secure financial backing, take advantage of changing attitudes and address fears about legalization. The Marijuana Policy Project aims to add California, Nevada, Massachusetts and Maine to its portfolio of ballot initiative successes in 2016, along with Arizona.

Legalization efforts – many backed by other groups – could appear on the ballot in about a dozen states next year. Twenty-three states and Washington, D.C., already allow for medical marijuana use. Four states – Washington and Oregon, in addition to Colorado and Alaska – and the District of Columbia allow adults to smoke pot recreationally.

In Congress, lawmakers have started to take positions on pot and more have supported state medical marijuana laws. Both Democratic and Republican presidential candidates are talking about how they would deal with marijuana if elected. Sen. Rand Paul, R-Ky., has even courted the legal marijuana industry for campaign donations.

Leaders in the pro-legalization movement said the question is no longer whether the federal government will treat marijuana like alcohol – but when. They say the question is no longer whether the states will legalize, regulate and tax marijuana sales – but how.

"I think we're past the tipping point," said Keith Stroup, the founder of the National Organization for the Reform of Marijuana Laws, another major player in the pro-legalization effort. "There are all kinds of signs that people have figured out that prohibition is coming to an end. They may not be thrilled about it, they may not be a cheerleader for it, but when they recognize that, they begin to say, 'OK, if we're going to legalize marijuana, how do we do it in a responsible manner?'"

But legalization opponents don't plan to concede any time soon.

"I don't think that legalization is inevitable," said Alan Shinn, the executive director of the Coalition for a Drug-Free Hawaii. "The pro-marijuana people will say that it's just a matter of time before marijuana is legalized. I think there's other alternatives to legalization. We should really be taking a public health approach to this, especially with our youth."

And that's still a sticking point. The federal government classifies marijuana as one of the most dangerous drugs, "with no currently accepted medical use and a high potential for abuse," according to the Drug Enforcement Administration.

The disparity between states that have liberalized their marijuana laws and the decades-old federal prohibition of its sale and use has caused confusion in law enforcement and tension in the business world. Pro-legalization groups said that's their ultimate goal: Put so much pressure on the federal government by legalizing state by state that they can finally end the discrepancy.

"I actually consider 2016 to be what I call the game-over year because there's a good chance that a bunch of states will legalize marijuana," said Bill Piper, the director of the Drug Policy Alliance's office of national affairs. "We're reaching the point where the federal government is going to have no other choice than to change with the times."

Strategic with resources

Advocacy groups have led ballot initiatives across the country, lobbied state legislatures and tried to convince members of Congress that leaving marijuana regulation to the states makes sense.

In the 1970s, NORML led the fight for marijuana law reform. Now, two other national organizations help run multimillion-dollar campaigns and station staff members across the country to support state measures that allow medical marijuana, decriminalize possession of small amounts of the drug or fully legalize adult use.

The Marijuana Policy Project, founded by former NORML staffers in 1995, has emerged as a political powerhouse with its robust fundraising, effective campaign messaging and expertise in drafting ballot initiatives and legislation. The Drug Policy Alliance was founded in 2000 to end the "War on Drugs." The group claims that marijuana arrests disproportionately impact racial minorities and drain law enforcement resources.

The groups and their state-level campaigns have benefited from billionaire philanthropists like

Peter Lewis, the head of Progressive Insurance who died in 2013, and George Soros, the founder of Soros Fund Management. Both have donated millions of dollars to changing drug laws across the nation over the last 20 years.

During that time, the groups have honed their strategies.

Mason Tvert, director of communications for the MPP, said his organization targets states based on their history with marijuana law reform, the makeup of the state legislature, the governor's position and the level of support from local advocacy groups.

And they must carefully decide where to put their money and resources.

When Rob Kampia, the group's executive director, spoke at a National Cannabis Industry Association policy symposium in Washington, D.C., in April, he called efforts to legalize marijuana in Michigan, Missouri and Ohio "outlier initiatives" because they're less likely to pass. He said in particular, the campaign to legalize marijuana in Ohio this fall was "premature."

A message that's worked

Allen St. Pierre, who succeeded Stroup as executive director of NORML a decade ago, said advocates for marijuana law reform have drawn from the tactics of the social movements for women's rights, civil rights and gay rights.

"We're not trying to hardly do anything different than those groups did," St. Pierre said. "We organized. We petitioned our government peacefully for grievances. We went to the courts and asked for relief. We've used science and language to cajole, persuade and effectively win what is called in the military a 'hearts and minds' campaign."

But it hasn't been easy.

The MPP's Tvert, who was a co-director of the campaign to legalize marijuana in Colorado, said that while the public had become more accepting of medical marijuana and supportive of removing criminal penalties for using the drug, there was still "this fear surrounding marijuana for fun." Several ballot measures to legalize recreational use failed between 2002 and 2010.

At that time, Tvert said, activists had tried to sell one main message to voters: Marijuana prohibition is a government failure that forces marijuana into the black market, contributing to drug trafficking and violence. They argued that a legal market would allow for more control and would generate tax revenue.

That didn't cut it.

"That just wasn't enough," Tvert said. "Ultimately, people were still not OK with it because they just thought it was too dangerous of a substance. You can tax anything. You can tax murder for

hire. Doesn't mean that people are going to think it should be legal. They think it's not good for society."

Survey results inspired legalization advocates to change tactics: Several MPP polls indicated that people were more likely to support marijuana legalization if they thought pot was less harmful than alcohol. And that became the argument behind the campaign supporting Colorado's measure to legalize recreational marijuana, Amendment 64, which passed in 2012 with 55 percent of the vote.

Colorado became a model for the MPP's efforts in other states, which have all taken the campaign name "Regulate Marijuana Like Alcohol." And the lawyer who wrote Colorado's initiative also helped draft a proposed ballot measure in Maine, said David Boyer, the group's political director for the state.

But the Maine campaign also made tweaks to its initiative, like lowering the tax rate, to make it more appealing to voters there.

Battling with local campaigns

Different groups advocate for legalization throughout the country, and they don't always agree on the methods or details. In fact, some local groups have started to view the MPP as an unwelcome outsider.

In Maine, the organization's proposal competes with one backed by a local group, Legalize Maine. Both would legalize marijuana possession for those at least 21 years old and would allow home growing. But the two campaigns have failed to compromise on several differences.

Legalize Maine's proposal would put the state's Department of Agriculture, Conservation and Forestry in charge of regulation, while MPP's would make the Bureau of Alcoholic Beverages and Lottery Operations responsible.

Paul McCarrier, the president of Legalize Maine's board of directors, said the two groups tried to negotiate for three months. But McCarrier said MPP's initiative did not focus enough on farmers.

"I think that they're looking at Maine as just another notch in their belt that will help push their national agenda," McCarrier said. "While the Marijuana Policy Project has done a really good job at starting a conversation about marijuana legalization here in Maine and trying to push the ball around the field nationally, when it comes to marijuana legalization, they are completely out of touch with normal Mainers."

Falling dominoes

Stroup said liberalization of marijuana laws has followed a general trajectory. The Western states lead the way – reducing penalties for marijuana possession, allowing residents to use medical marijuana, or eliminating all penalties for marijuana use and creating systems for regulating pot

sales. Then momentum builds on the East Coast. Progress is slower in the Midwest, and movement in the South has proven most difficult.

The increase in medical marijuana programs across the country has helped to overcome the stigma surrounding marijuana, Stroup said. More than three-quarters of people support medical marijuana use, according to a 2014 National Public Radio-Truven Health Analytics poll. But only 43 percent support legalization for recreational purposes.

MPP prefers to run ballot-initiative campaigns as opposed to pushing bills through state legislatures.

But Stroup identified the legalization movement's next big turning point: Build enough political support to push the first full legalization measure through a state legislature. It's an important step because about half of the states allow citizen-initiated ballot measures.

"We have to just simply work it every year, every chance we get, bringing in good witnesses, provide elected officials with the best information, and over a period of time, as they become more comfortable with the concept, then we'll be winning it with state legislatures," Stroup said.

But legislative measures have drawbacks as well.

"The version of legalization we win through legislatures will necessarily be more restrictive than the versions we win by voter initiatives because with an initiative, you don't have to compromise," Stroup said.

Tvert said that in 2016, Rhode Island and Vermont could become the first states to legalize marijuana through their state legislatures. A majority in both states support legalization, according to internal and independent polls conducted this year. Both state legislatures adjourned this year before acting on bills to legalize and regulate pot.

Public opinion on the movement's side

Time could be the legalization movement's greatest ally. Sixty-four percent of those between 18 and 34 years old say they support legalization, compared to 41 percent among those 55 and older, according to Gallup.

"Demographically, we knew years ago we were going to win this because young people were on our side," Stroup said. "We used to laugh, in fact, that if necessary we had a fallback strategy. And that was we would outlive our opponents. Well, I think to some degree that's exactly what we've done."

But advocates still need to convince a significant number of Americans to support recreational legalization.

"Despite the fact that the polls make it seem like it's really split down the middle, there is a huge group of people who are kind of fishy on it," said Sarah Trumble, senior policy counsel at Third

Way, a centrist think tank in Washington, D.C.

Third Way refers to this group as the “marijuana middle.” Many in this group support legalizing marijuana for medical use but not for recreational use.

“On this issue, like all others, values are really what drive them,” said Trumble, who specializes in reaching moderates on social issues. “There’s a compassion value that ties into medical marijuana, and that’s why so many people support medical marijuana.”

She said she expects that as more states legalize, more Americans admit that they have used marijuana and the drug becomes less stigmatized, public opinion will continue to shift toward legalization.

“We’re going to have to see really how those ballot initiatives go because if you run strong campaigns and pass laws and states do a good job of regulating marijuana, that will be the first stepping stone to other states having it,” Trumble said. “But if a state, for example California, passes marijuana legalization for recreational and then does a poor job of regulating it, that could really set everything back.”

Letting the states experiment

NORML’s Stroup said he hopes the Obama administration will remove marijuana from the federal government’s list of the most dangerous drugs. Marijuana is listed as a Schedule I substance, which means it is a drug “with no currently accepted medical use and a high potential for abuse.” Other Schedule I drugs include heroin, LSD and Ecstasy.

Stroup said he’d like to soon see marijuana reclassified as a Schedule II or Schedule III drug, which wouldn’t make it legal to possess, sell or grow, but would make it easier for researchers to access. Other advocates have called for removing marijuana from the scheduling system completely.

The president has spoken about using marijuana himself as a young man, and he has said he does not believe marijuana is more dangerous than alcohol. He’s recently focused on criminal justice reform, calling for shorter sentences for nonviolent drug crimes.

“At a certain point, if enough states end up decriminalizing, then Congress may then reschedule marijuana,” Obama said during an interview with Vice in March. “But I always say to folks, legalization or decriminalization is not a panacea.”

A 2013 Justice Department memo stated that the federal government would only interfere under certain circumstances: if state or local law enforcement failed to prevent distribution of marijuana to minors, revenue from marijuana sales went to gangs or marijuana crossed into states where it remains illegal.

While Obama's administration hasn't interfered in states that have legalized, a future president could. That's why Stroup wants federal law to leave marijuana regulation to the states, "so it doesn't matter who's president. States are free to experiment."

Mario Moreno Zepeda, a spokesman for the Office of National Drug Control Policy, said the White House remains "committed to treating drug use as a public health issue, not just a criminal justice problem. The federal government opposes drug legalization because it runs counter to a public health and safety approach to drug policy."

"This administration's position on enforcement has been consistent: While the prosecution of drug traffickers remains an important priority, targeting individual marijuana users – especially those with serious illnesses and their caregivers – is not the best allocation of limited federal law enforcement resources," Zepeda said.

From 'unthinkable' to 'mainstream'

Michael Correia, the director of government relations for the trade group National Cannabis Industry Association, said that years ago, members of Congress took no positions at all on marijuana. Now, they are beginning to support research and allowing state medical programs to continue operating.

Still, he said marijuana issues haven't become a major priority in Congress, especially among the leadership.

"Marijuana is not global warming. It's not abortion. It's not guns. So it's not really high up on their radar screen, but it is an intriguing issue, and people need to get educated on some of the issues before they can form an opinion," Correia said.

Dan Riffle joined the MPP in 2009, and worked as a state legislative analyst for three and a half years. Now the group's director of federal policies, he said that in Congress, marijuana "is an issue that's gone from being an untouchable, unthinkable, third-rail issue to a legitimate, mainstream topic of debate."

"It's gone from a place where we struggled to have (Congress members and staffers) take meetings with us, to have our phone calls returned, to now people reach out to us and ask us to come in and brief them and use us as a resource," Riffle said.

Riffle tailors his message to his audience. If he meets with a member of the Congressional Black Caucus, for example, Riffle talks about the disparity in arrests between blacks and whites. If he sits down with a Republican who has libertarian tendencies, he drives home the argument that smoking pot is an individual decision.

Riffle said Congress is grappling with federal law that prohibits marijuana and state laws that allow its use. He said some lawmakers have tried to "address symptoms of that disease" with bills that would allow marijuana businesses to use banks, or permit Veterans Affairs doctors to recommend medical marijuana for veterans who live in states where it's legal.

“But then you’re going to have other folks who say, ‘Look, rather than passing seven, eight, 12 different bills depending on what the issue is, let’s just grapple with the underlying problem,’ which is the conflict between state and federal marijuana laws,” Riffle said.

The Respect State Marijuana Laws Act – introduced by Rep. Dana Rohrabacher, R-Calif. – would do that by amending the Controlled Substances Act. It would change the federal law to protect anyone producing, possessing, distributing, dispensing, administering or delivering marijuana in states where those actions are legal. The bill has 14 co-sponsors, including six Republicans.

Rep. Earl Blumenauer, D-Ore., a longtime champion of marijuana law reform, said he anticipates the federal government will treat marijuana like alcohol within a decade.

“My judgment is with a new administration, with several more states legalizing, with public opinion solidifying, and with more and better research, I think in the next administration and the next Congress or two, we’ll be in a position to just basically say, ‘States, do what you want to do,’” Blumenauer said.

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20. China Evacuates Tianjin Blast Area Amid Fears of Toxic Chemicals in Air **Wall Street Journal -- 8/15/2015 New York, NY**

China Evacuates Tianjin Blast Area Amid Fears of Toxic Chemicals in Air
Civilians in temporary shelter relocated after wind-change warning, state media says
By Chun Han Wong Aug. 15

BEIJING—Authorities ordered residents to leave the vicinity of a deadly warehouse blasts in the northeastern Chinese city of Tianjin amid concerns over airborne chemical pollutants and fires at the scene.

Civilians who were resettled at a temporary shelter near the blasts, which killed at least 112 people and injured more than 700 others, were transferred to another location after officials received warning of changes in wind direction, China’s official Xinhua News Agency said.

Several other Chinese media outlets—including Beijing News, a leading commercial newspaper—said authorities ordered an evacuation of an area within a 1.9-mile radius of the blast site over fears of toxic gases emitted from hazardous chemicals. However, state broadcaster China Central Television reported that officials ordered a shifting of some personnel and the rescue command center, rather than a general evacuation.

At a news conference, municipal officials said hazardous and toxic chemicals were likely stored in the warehouse before Wednesday’s explosions, though investigators haven’t determined the precise quantities.

Sodium cyanide, a highly toxic substance that emits poisonous fumes when heated, could be present, according to Gao Huaiyou, vice head of the Tianjin administrative bureau of work safety.

Rescue workers remained at the blast zone—located within a logistics area that serves one of the world's busiest ports—where they continued to battle small fires and searched for survivors, state media said.

Several explosions were heard at the blast site Saturday, and smoke plumes were visible, according to several Chinese media reports. A man was rescued Saturday by military chemical-warfare specialists searching the core blast area, according to state media.

Meanwhile, some relatives of firefighters tried to storm a news conference in a bid to seek information about their missing loved ones, telling reporters that they haven't received information from Tianjin authorities, according to several Chinese media reports. The relatives were later removed from the venue by security personnel, the reports said.

The dockside warehouse was operated by Ruihai International Logistics Co., which said on its website that it is licensed to handle hazardous chemicals and other potentially toxic material, including flammable substances such as ethyl acetate, and water-reactive chemicals such as calcium carbide, which generates explosive gases when it gets wet.

Tianjin authorities said they believe the potentially hazardous substances stored at the warehouse may include potassium nitrate, ammonium nitrate and calcium carbide, and are taking steps to dispose of the material. Officials also detected sodium cyanide in water seeping from the area, and have taken steps to prevent the tainted water from flowing out to sea, they said.

The Aug. 12 explosions—large enough to be detected by earthquake sensors—affected about 17,000 households and roughly 2,300 businesses, according to Tianjin officials, who said they have put up more than 6,300 people in temporary shelters away from the blast site.

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21. Study shows how climate change threatens health

EurekAlert! -- 8/14/2015 Washington, DC

Study shows how climate change threatens health
Gulf Coast, Northeast and West Coast of US at high risk
The Earth Institute at Columbia University 14 August Press Release

Researchers at Columbia University's National Center for Disaster Preparedness (NCDP) and the University of Washington have published a new study focused on the public health implications of climate change. The article explores climate change impacts on human health in the U.S. Gulf Coast and has implications for this and other coastal regions that are particularly vulnerable to climate change. The study appears in the International Journal of Environmental Research and

Public Health (August 11, 2015). The Open Access article is available here:
<http://www.mdpi.com/1660-4601/12/8/9342/html>

This new review of available data comes on the heels of President Obama's announcement of the requirement for reduced carbon emissions by the power industry as part of the Clean Power Plan. The Obama administration has fully acknowledged the human health impacts of the country's fossil fuel energy production and the immediate need to mitigate and adapt the nation's energy policies.

Climate variability and change present substantial threats to physical and mental health, and may also create social instability, potentially leading to increased conflict, violence, and widespread migration away from areas that can no longer provide sufficient food, water, and shelter for the current populations. Coastal areas, where a large proportion of U.S. residents live, are particularly vulnerable to impacts of climate change due to hazards such as changing water use patterns, shoreline erosion, sea level rise and storm surge.

According to Dr. Irwin Redlener, director of the National Center for Disaster Preparedness at Columbia University's Earth Institute, "The science of climate change and the threat to human and population health is irrefutable - and the threat is evolving quickly." Dr. Redlener, also a professor of Health Policy and Management at Columbia's Mailman School of Public Health, added, "Unfortunately, we are now at a point where simply slowing climate change, while critical, is not enough. We need to simultaneously develop and deploy ways of mitigating the impact and adapting to the consequences of this environmental disaster."

Public health impacts in the U.S. Gulf Coast may be severe as the region is expected to experience increases in extreme temperatures, sea level rise, and possibly fewer but more intense hurricanes. Through myriad pathways, climate change is likely to make the Gulf Coast less hospitable and more dangerous for its residents, and may prompt substantial migration from and into the region. Public health impacts may be further exacerbated by the concentration of vulnerable people and infrastructure, as well as the region's coastal geography.

The new paper provides an overview of potential public health impacts of climate variability and change on the Gulf Coast, with a focus on the region's unique vulnerabilities, and outlines recommendations for improving the region's ability to minimize the impacts of climate-sensitive hazards.

"Climate change may amplify existing public health impacts, such as heat-related morbidity and mortality, malnutrition resulting from droughts, and injury and deaths following exposure to floods," said Dr. Elisa Petkova of the National Center for Disaster Preparedness. "Although future trends are difficult to project, climate change may also facilitate the re-introduction of vector-borne diseases such as malaria and dengue fever to the Gulf Coast and other vulnerable coastal regions."

Based on this research NCDP's key recommendations include:

The Federal government should establish a multi-agency permanent task force on the human

and population impacts of climate change, charged with identifying innovative adaptation strategies. This task force should include relevant government agencies, as well as relevant private sector stakeholders.

Funds should be made available for the simultaneous implementation of adaptation strategies to improve individual, public health system, and infrastructure resilience.

Adaptation efforts should follow a course set by the Federal taskforce and should attempt to integrate hazard-specific adaptation measures into city, state and regional level emergency management plans, particularly in high-risk regions.

Further explore the linkage between weather events and infectious disease with an aim to enhance surveillance and intervention efforts.

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About NCDP The National Center for Disaster Preparedness (NCDP) at the Earth Institute works to understand and improve the nation's capacity to prepare for, respond to and recover from disasters. NCDP focuses on the readiness of governmental and non-governmental systems; the complexities of population recovery; the power of community engagement; and the risks of human vulnerability, with a particular focus on children.

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22. Volcanic activity slows at Sakurajima but alert remains in force

Japan Times, The -- 8/17/2015 Tokyo

Volcanic activity slows at Sakurajima but alert remains in force
JIJI, Kyodo Aug 17, 2015

Volcanic activity at Mount Sakurajima in Kagoshima Prefecture has quieted down after intensifying Saturday morning, but the Meteorological Agency said Monday it will remain on alert for signs of a major eruption.

Tectonic movements indicating swelling of the mountain has also slowed, the agency said. It believes the rise of magma from an underground chamber has subsided for now.

Takeshi Koizumi, senior coordinator for volcanic disaster mitigation at the agency, said: "We need to remain on alert because it is not known when magma will start to rise again and when a major eruption will occur as a result."

At a meeting Sunday, officials of relevant government agencies agreed on a policy to enhance monitoring at Sakurajima, to provide accurate information and to offer support for evacuees.

Eriko Yamatani, minister for disaster prevention and reduction, called on the public to remain calm.

In a video conference linking national officials with prefectural officials, Kagoshima Gov. Yuichiro Ito warned that additional evacuation and protective measures could become necessary if the situation worsens.

Masato Iguchi, a professor at Kyoto University's Disaster Prevention Research Institute who monitors Mount Sakurajima, said monitoring for volcanic activity will need to remain intense for at least another two weeks.

On Saturday, residents near Sakurajima evacuated to safer places after the government raised the alert level to 4 on a 5-point scale, indicating a major eruption could be imminent.

Level 4 is the highest ever for Sakurajima — which is located just 4 km across the water from the major port city of Kagoshima — since the current volcanic alert system was launched in 2007.

The alert level was still at 4 as of Monday.

Evacuees moved to evacuation centers set up by the city or to other places, including relatives' homes.

"I'm concerned an eruption will damage my home," said Yoshiko Ikeda, 87.

"I have lived in Sakurajima for more than 50 years, but I never imagined we would have to evacuate," said Emiko Miyashita, 80.

The municipal government displayed the alert in Japanese and English on digital boards at the ferry landing on the Sakurajima route in case non-Japanese in the area had not received the information.

Officials told evacuees Sunday night that their evacuation may last a week or longer.

Kyushu Electric Power Co.'s Sendai nuclear power plant is located 50 km from the volcano. Last Tuesday, it became the first nuclear plant to restart under tighter safety rules adopted in the wake of the 2011 Fukushima nuclear crisis.

No abnormality has been reported at the Sendai plant.

Before the alert level was raised to 4 by the Meteorological Agency, it had been set at 3, which restricts entry to the mountain area. When it was raised, the Kagoshima Municipal Government issued an evacuation advisory for areas near the mountain, affecting 77 residents. All of them had left the area by Saturday evening.

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23. Animals shrunk after Fukushima crisis began

ENENEWS.COM -- 8/14/2015 Internet

Animals shrunk after Fukushima crisis began

Japan Scientists: We conclude that the small size was caused by environmental stress imposed by unusual event

August 14th, ENENews

Scientific Reports — Wataru Taira, Mayo Iwasaki & Joji M. Otaki (BCPH Unit of Molecular Physiology, University of the Ryukyus, Japan), published Jul 22, 2015:

Body size distributions of the pale grass blue butterfly in Japan: Size rules and the status of the Fukushima population

The body size of the pale grass blue butterfly, *Zizeeria maha*, has been used as an environmental indicator of radioactive pollution caused by the Fukushima nuclear accident... Our study... supports the idea that the size reduction observed only in Fukushima Prefecture in 2011 was caused by the environmental stress of radioactive pollution.

Following the massive environmental pollution caused by the release of radionuclides from the collapsed Fukushima Dai-ichi Nuclear Power Plant, the pale grass blue butterfly was used to monitor and examine the biological impacts of this pollution. Forewing size, a proxy for body size, of this butterfly was utilized as an indicator of the effects of environmental stressors. Adult butterflies collected from Fukushima City, Motomiya City, and Koriyama City (all within the Fukushima Prefecture) in the spring of 2011 had smaller forewing sizes than those collected from the northern and southern localities at the same time. It has been demonstrated that small forewing size can be induced by external exposure to a cesium radiation source or internal exposure by ingesting contaminated foods.

We found small male forewing sizes in the spring of 2011 in Fukushima City, Motomiya City, and Koriyama City... In light of the results of this study, we conclude that the small forewing size detected in the spring 2011 in Fukushima Prefecture was caused by environmental stress that was imposed by an unusual event (likely the Fukushima nuclear accident) covering a relatively large geographical range of Fukushima Prefecture.

The small forewing size of the pale grass blue butterfly in Fukushima Prefecture in the spring of 2011 was likely due to the Fukushima nuclear accident.

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24. Constantly checking your mobile phone can lead to 'cognitive failures'

Independent, The -- 8/17/2015 London, UK

Constantly checking your mobile phone can lead to 'cognitive failures'

Tom Bawden 17 August 2015

Whether sitting on a train or having dinner at a restaurant, many people find it hard to stop

fiddling with their mobile phones – firing off a never-ending stream of Facebook, Instagram and Twitter posts.

If this online hyperactivity looks exhausting, it's no surprise to discover that these high-frequency internet users find it much more difficult to pay attention to what's going on around them than the rest of us – even when they are not consumed by the web.

New research finds that the most frequent mobile phone and internet users are the most likely to be distracted, for example by being prone to missing important appointments and daydreaming while having a conversation.

In the first study of its kind, an academic from Leicester's De Montfort University has found that the more times a person uses the internet or their mobile phone, the more likely they are to experience "cognitive failures".

These include a whole range of blunders, and a general lack of awareness of a person's surroundings that stretches as far as people forgetting why they have just gone from one part of the house to the other says Dr Lee Hadlington, author of the research.

The study draws the same conclusions among users of mobile phones without internet access as with it – suggesting that mobile phone conversations and surfing the web are similarly associated with distraction.

But whether the most digitally active people are more distracted because their excessive online activity makes them jittery or hyperactive, or whether it is the other way around – that they are more drawn to these activities because they naturally have short "attentional control" – is unclear at this stage, he says.

Dr Hadlington does have a theory, however: that it is a mix of the two. In other words, those people already suffering from short attention spans are drawn to the distractions of modern technology, which makes it even harder for them to pay attention to their surroundings.

His research has been published in the journal Computers in Human Behaviour. He is now working on research to answer this question more comprehensively and to look for ways to solve the problem.

"This is a very underexamined area and a very important one. We are using technology on a daily basis but we don't understand its effect on us," Dr Hadlington said.

"We don't know what's actually happening to our cognition when we are using this technology and that's the important thing. What we do know from this research is that there are some statistically significant numbers of people who say they use the internet or their phone a lot and who experience cognitive failures," he added.

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25. Australia Targets Wildlife-Killing Cats With Toxic Microchips

TakePart -- 8/14/2015 Beverly Hills, California

Australia Targets Wildlife-Killing Cats With Toxic Microchips

Implanting feral felines with chips that release poison and kill the predators when they attack is just one strategy for keeping native animals from going extinct.

Aug 14, 2015 Richard Conniff

Domestic cats have become notorious in recent years as one of the most destructive invasive species on the planet, now threatening dozens of bird and mammal species with extinction. (That's on top of the 30 or so species they have already eradicated.) When conservationists are trying to restore a threatened species to its old habitats, a single murderous cat can be enough to destroy the entire project.

Now frustrated scientists in Australia are proposing to apply criminal forensics and even a poison pill to identify and eliminate problem cats—and possibly spare other cats that are innocent of the killing. In an article in the journal Biological Conservation, they call these experimental techniques “predator profiling.”

A team of researchers led by ecologist Katherine Moseby at the University of Adelaide looked at restoration attempts for what they call “challenging species.” That generally means mammals that are big enough, toothy enough, or just plain mean enough that you might not think the average outdoor cat would pose a threat. Many of these species—the western quoll, the burrowing bettong, the rufous hare-wallaby—are largely unfamiliar outside Australia, and that’s the point. They are endemic species found nowhere else in the world and an essential part of Australia’s natural heritage. Cats, introduced to Australia about 200 years ago, aren’t—and they have proved capable of killing native species weighing as much as 12 pounds.

The cats have become a nightmare for restoration biologists. In one reintroduction attempt, 13 of 31 rufous hare-wallabies quickly vanished, and feral cats seemed to be the culprit. The researchers trapped and euthanized a single 11.2-pound cat, and the killing stopped. The same thing happened in a brush-tailed bettong reintroduction, with the radio collars of 14 animals—a fifth of the total—giving out the “dead” signal one by one over a period of four months. Eliminating a single 12.6-pound cat ended the problem.

For their study, Moseby and her colleagues looked at an attempt to reintroduce 41 western quolls—a predatory marsupial once common throughout Australia—into Flinders Ranges National Park. They retrieved the 11 animals that died and, among other forensic techniques, took swabs of the saliva on the radio collar and on the carcass for matching with samples from captured cats. In one typical case, a professional shooter killed a large male cat near a quoll kill site, and not only was its DNA identical to that found on the dead quoll, but its teeth matched the bite marks on the victim, and it had quoll fur in its stomach.

The problem for challenging species reintroductions, said Moseby in an interview, is that certain cats—generally large males—learn to deal with the challenges and then specialize in that prey,

coming back again and again. Ducks aren't exactly challenging, but swimming usually is for cats. Yet in one notorious case, a cat was shot while swimming out to gray teal nests—and it had gray teal in its stomach. It was a serial killer. Moseby likened the proposed response to the way society generally deals with other "problem predators": The conventional practice is not to eliminate all tigers or polar bears, say, but to target only individuals that have become a menace to humans.

In the case of cats, attempting to eradicate the entire free-roaming population isn't generally practical, except on small islands. It can be more efficient, said Moseby, to identify and eliminate just the problem felines. Or, because DNA and other forensic techniques are still relatively expensive, it may require eliminating the type of cats, those large males that are prone to causing problems for challenging prey. That can mean setting large box traps or using auditory signals to target those cats. "We're trying to show that not all cats are created equal," said Moseby. "Only a proportion of the animals are doing the damage."

But aren't some cat owners going to interpret that to mean their cat is innocent and should be free to roam outdoors? "I can see that there's a potential for that," she acknowledged. "But we're only talking about challenging species—prey species that are larger, more aggressive, and have defensive mechanisms. Whereas for things like native lizards or native mice, they might be vulnerable to any cat." That's why Australia recently launched a "war on cats," with a plan to cull 2 million feral cats over the next five years. Environment Minister Greg Hunt described the program as an attempt to "halt and reverse the threats to our magnificent endemic species." (In New Zealand, where cats have also devastated endemic species, an economist and an environmentalist have proposed a ban on all domestic cats.)

But cats are unlikely to go away anytime soon. So Moseby is working on one initiative to make native species more cat-savvy. Researchers now have 450 burrowing bettongs, small marsupials, in a nine-square-mile fenced paddock with two cats. The aim is to fast-track evolution and over a few generations breed up populations that can survive even with cats in the area. "We don't want to be building fences forever and excluding these animals completely," she said. That just encourages prey animals to become more naive about predators.

Another more radical initiative in the works at the University of Adelaide would automatically target and kill problem cats at the scene of the crime: Researchers are developing "toxic microchips," said Moseby, that could turn a prey animal into "a toxic Trojan horse." The chip, implanted in an animal's skin, would not harm the carrier. It uses a local toxin to which indigenous species have adapted but introduced species haven't. The chip is designed to break open during the shredding and rending of a predator attack and thus poison the killer—specifically a cat or another introduced species. That may sound like cruel and unusual punishment to cat lovers. But if their cats are really as innocent as they like to say, they won't encounter the problem in the first place.

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